

Technology Review

Edited at the Massachusetts Institute of Technology

July, 1964

Dean Burchard Retires, Page 4



The Graduation Ceremony and Address

Pages 17 to 21

technology review

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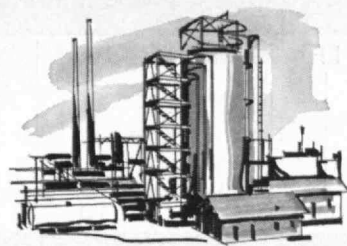
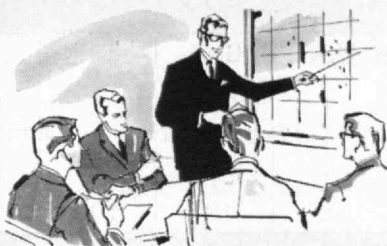
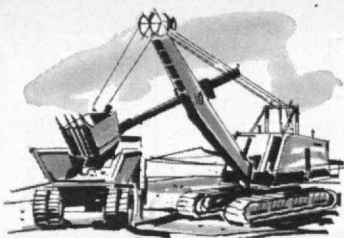
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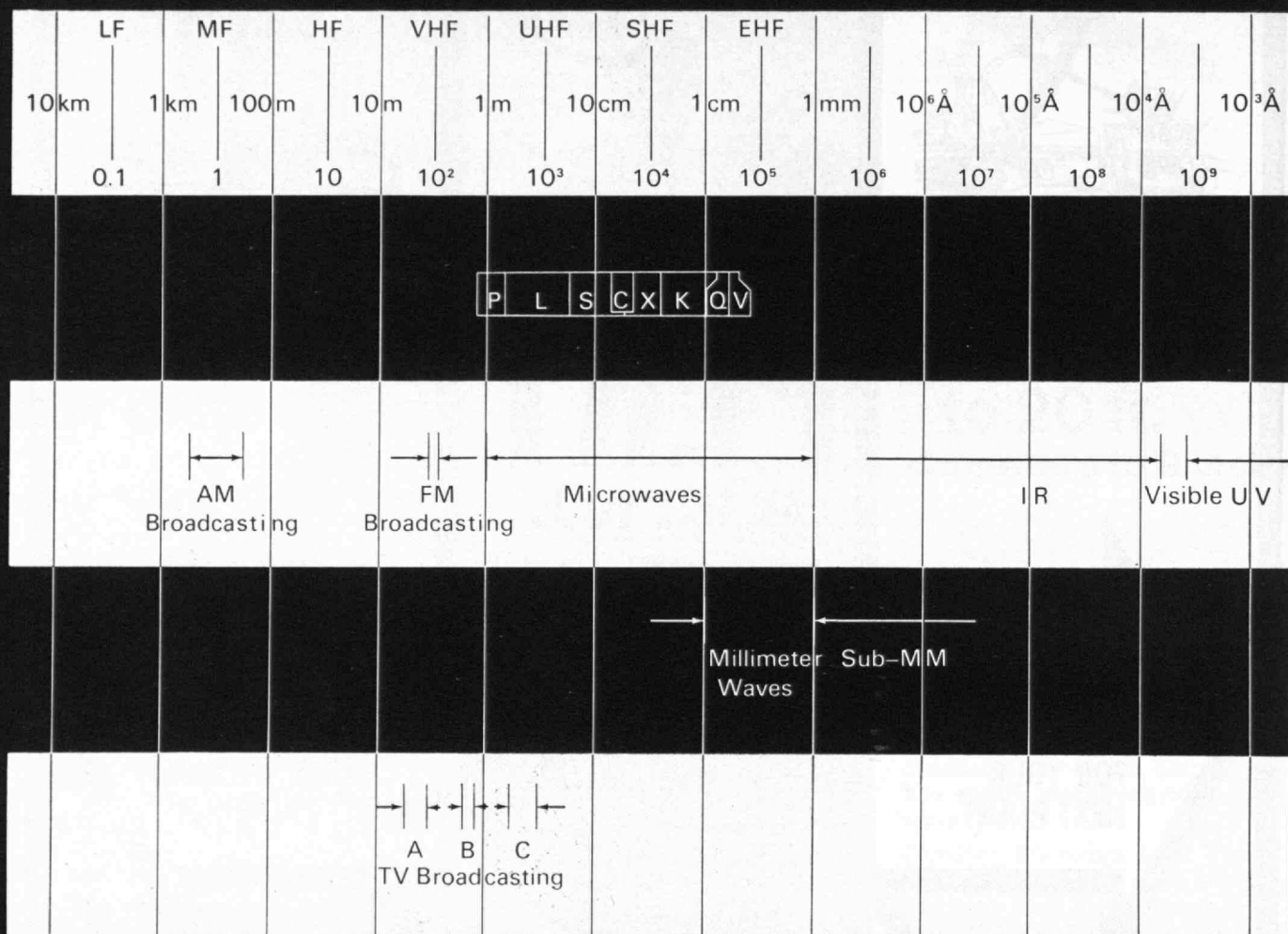


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A description of the Laboratory's work will be sent upon request.



Technology Review

Reg. U.S. Pat. Off.

Edited at the Massachusetts Institute of Technology
Volume 66, Number 9

FIFTY-ONE countries were represented at M.I.T.'s 1964 commencement, and 222 foreign students received degrees. Internationalized education is the subject of "Classmates From Other Countries" on page 36.

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The Review's publisher and editor is *Volta Torrey*; business manager, *R. T. Jope*, '28; assistant to the editor, *Ruth King*; and class news editor, *Roberta A. Clark*. Editorial consultants are *J. J. Rowlands*, *Francis E. Wylie*, and *John I. Matill*. Members of its staff are *Marilyn Phillips* and *Maxine Kenny*.

Officers of the Alumni Association of M.I.T. are: *Robert H. Winters*, '33, President; *Donald P. Severance*, '38, Executive Vice-president; *F. Leroy Foster*, '25, and *Samuel A. Groves*, '34, Vice-presidents; and *Frederick G. Lehmann*, '51, Secretary.

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This issue concludes Volume 66 of Technology Review. Number 1 of Volume 67 will be published on October 27, 1964. An index to Volume 66 is now being prepared and will be sent this fall to readers who request it.

Individuals Noteworthy

A Noted Dean Retires

JOHN E. BURCHARD, '23, first Dean of the M.I.T. School of Humanities and Social Science, retired in June and will go to the University of California in the fall as a visiting professor. He will return to the Institute for the spring semester, however, to teach at the Sloan School of Management, and will continue studies of architectural history which a Carnegie Foundation grant to M.I.T. will support for several years.

Dean Burchard played a key role in establishing the school that he has headed since 1948. During his administration, the Center for International Studies was formed as a part of it; Course XXI was begun for students wishing to stress humanities or social studies as well as science or engineering; graduate programs were developed in political science, philosophy, psychology, and linguistics; and underclassmen were enrolled in unique "Humanities in French" classes.

He was general chairman of both the Mid-Century Convocation in 1949, at which Sir Winston Churchill spoke, and the centennial celebration in 1961 that Prime Minister Macmillan addressed. He was a leader, too, in the development of programs of drama, lectures, music,

and art at M.I.T., and chairman of the board of The M.I.T. Press.

While a graduate student, Dean Burchard was assistant to the Head of the Department of Civil Engineering and an instructor in English. While with Bemis Industries, Inc., of which he became vice-president in 1933, he was a part-time instructor in Architecture, and he returned to the Institute as a professor when the Albert Farwell Bemis Foundation was established for the support of housing and city planning studies. While he was director of libraries of the Institute, plans were consummated for the construction of the Charles Hayden Memorial Library.

Dean Burchard wrote *Q.E.D.*, the history of M.I.T.'s activities in World War II, and for his own war work received the Medal for Merit, the nation's highest civilian award. He was also co-author with Lincoln Thiesmeyer of *Combat Scientists and Rockets, Guns and Targets*; with Albert Farwell Bemis, '93, of *The Evolving House*; with Oscar Handlin, of *The Historian and the City*; and with Albert Bush-Brown, of *The Architecture of America*, a comprehensive study commissioned by the American Institute of Architects.

Internationally noted as an au-

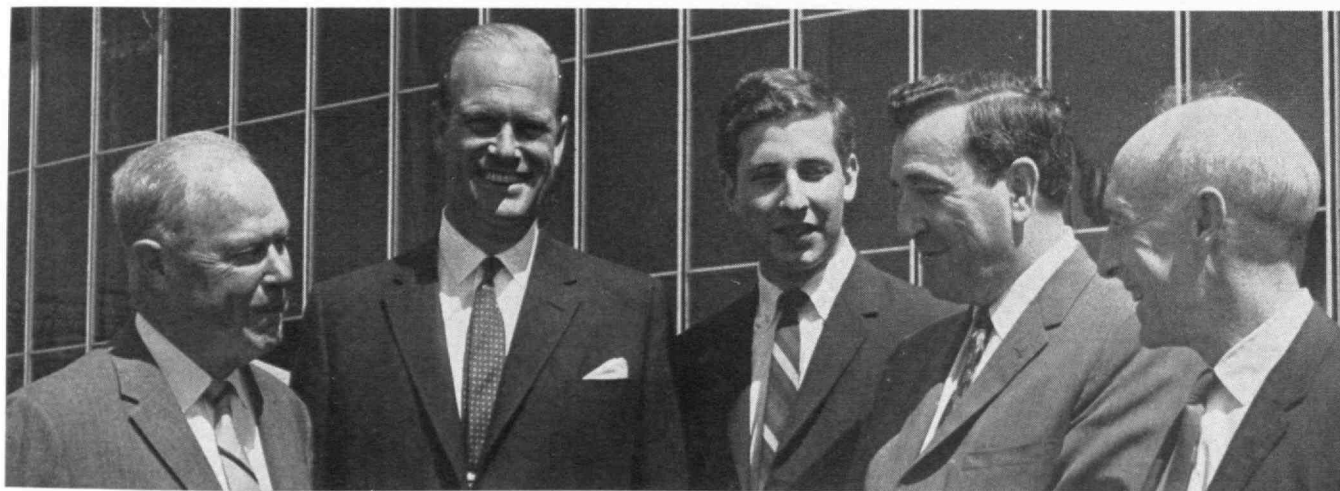
thority on architecture, writer and critic of the arts, he was president of the American Academy of Arts and Sciences for three years, and was largely responsible for the establishment of its quarterly, *Daedalus*. He has been a trustee of Mount Holyoke College and the Boston Museum of Fine Arts, and has been honored by many organizations and schools, including the University of Minnesota, where he was an undergraduate, Union College, and the University of Michigan. This spring he was awarded the insignia of the Ordre des arts et des Lettres (officier) by the Government of France.

Honorary Alumni

THE M.I.T. Alumni Association made Professors Irwin Whiting Sizer and Albert Otto Seeler honorary members on Alumni Day this year.

Professor Sizer is head of the Department of Biology and an authority on the biochemistry of enzymes. A graduate of Brown University, with a Ph.D. degree from Rutgers, he has been a teacher and researcher at the Institute for 29 years, and has helped scores of undergraduates prepare for medical schools and subsequent careers in medicine and research.

Dr. Seeler is medical director and head of the Medical Department responsible for the health of people at the Institute. A graduate of Harvard College and Harvard Medical School, he has been at the Institute since 1956, and is now helping to establish a Clinical Research Center in which both scientists and engineers will work with qualified physicians.



THE GRADUATE'S ROLE in Tomorrow's World was discussed at M.I.T. June 11 by (from left) Edward J. Hanley, '24, Robert H. Winters, '33, Steven J. Glassman, '64, Jerome

B. Wiesner, and Howard O. McMahon, '41, on a program arranged in place of a baccalaureate address, and they dealt with industry, research, government, and education.



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Individuals Noteworthy

(Continued from page 4)

New Posts

NAMED in the news of promotions, elections, and appointments recently were:

Isidor Slotnik, '19, as a Member, Government Center Commission, Boston . . . *J. Rowland Hotchkin*, '21, and *Gilbert M. Roddy*, '31, as Directors, United-Carr Incorporated . . . *Frederick E. Walch, Jr.*, '26, as President, C. J. Van Houten & Zoon N. V., Weesp, the Netherlands . . . *William Wraith, Jr.*, '26, as Vice-president, The Anaconda Company;

Louis P. Holladay, 3d, '34, as Sales Manager—Metals, Chemicals and Dry Cleaning, Electrochemicals Department, E. I. du Pont de Nemours & Company, Cleveland . . . *Richard F. Bailey*, '35, as Treasurer and Assistant Secretary, American Saint-Gobain Corporation . . . *Michael A. Kuryla*, '36, as Vice-president, Cerro de Pasco Corporation, Lima, Peru . . . *Peter A. Cole*, '38, as Director, Institute of Naval Studies, Center for Naval Analyses, Franklin Institute . . . *John F. Mahoney*, '38, as Director, Product De-

velopment and Service Laboratories, Merck & Company, Inc.;

Edward M. Brooks, '39, as a Staff Member, Physics Research Division, Geophysics Corporation of America . . . *John S. Hamilton*, '39, as Manager, Trade Relations, Aluminum Company of America . . . *Jesus C. Perlas*, '40, as General Manager, National Waterworks and Sewerage Authority, Manila, the Philippines;

Jerome T. Coe, '42, as Manager, Marketing and Public Relations Research Service, General Electric Company, New York City . . . *Arthur A. Hauser, Jr.*, '42, as Head, Systems Research Group, Sperry Rand Corporation . . . *Sutton Monro*, '42, and *Alfred J. Diefenderfer*, '61, respectively, as Professor of Industrial Engineering, and as Associate Professor, Department of Chemistry, Lehigh University;

Carlton G. Lehr, '43, as Staff Engineer, the Smithsonian Astrophysical Observatory, Cambridge . . . *Corwin H. Brumley*, '44, as Vice-president, Bausch & Lomb Incorporated . . . *James V. Chabot*, '46, as Manager, Vehicle Engineering Department, Ford Motor Company . . . *R. Clark DuBois*, '48, as Assist-

ant Chief Engineer—Postage Metering Machines and Scales, Pitney-Bowes, Inc.;

John W. Weil, '48, as Manager, Systems and Processors Operation, Computer Department, General Electric Company . . . *John C. Kern*, '50, as Manager, Product Planning, Coleman Instruments Corporation . . . *Walter E. Kunze, Jr.*, '50, as Director of Promotion Planning and Engineering Services, Portland Cement Association, Skokie, Ill.;

Stephen D. Moxley, Jr., '50, as Engineering Manager, Electronic Division, AVCO Corporation . . . *Frank L. Petree*, '50, as Chief Development Engineer, Eastern Division, Nuclear Data, Inc. . . . *William H. Gable*, '51 as Vice-president—Engineering, Aircraft Armaments, Inc. . . . *Breene M. Kerr*, '51, as Deputy Assistant Administrator—Technology Utilization, NASA . . . *Lionel V. Baldwin*, '55, as Acting Dean, College of Engineering, Colorado State University;

Ernst Schloemann, '55, Scientific Fellow, Research Division, Raytheon Company . . . *Alan B. Burns*, '62, as Plant Manager, Union Carbide Chemicals Company, Whiting, Ind.
(Concluded on page 10)

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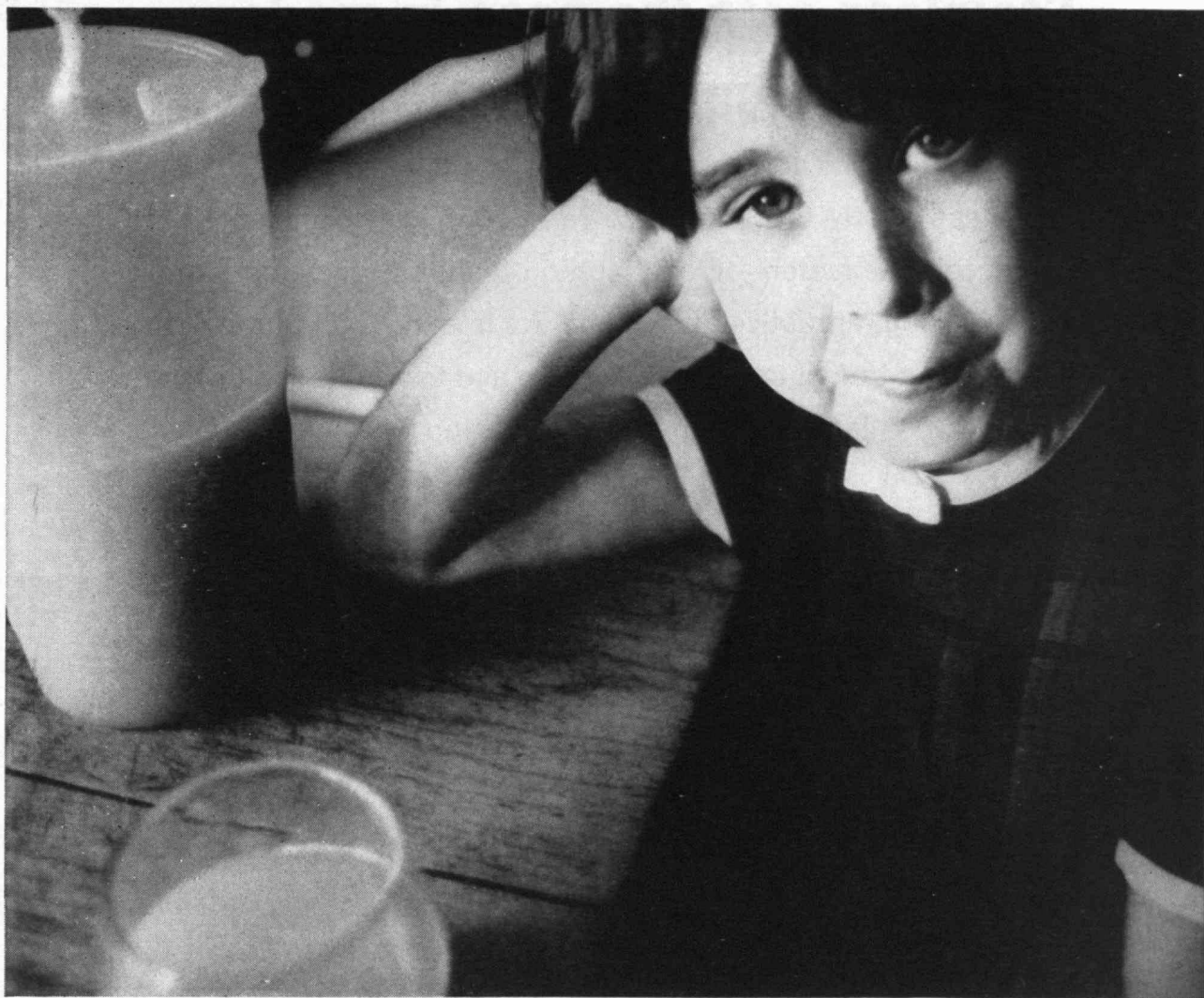
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You'd expect that a company with 50 years' experience in extracting oxygen from the air would lead the field. You might even assume—and you'd be right—that it knows a lot about how oxygen can speed the making of steel. As a result, the company sells oxygen by the ton to steelmakers to help them produce faster and more efficiently.

You'd also expect that a leader in cryogenics, the science of supercold, would develop an improved process for making the frozen orange juice concentrate that starts Tricia McDonald off to a bright, good morning.

But there might be some doubt that two such activities as helping to speed steel production and helping to improve frozen orange juice could come from one company. Unless you knew Union Carbide.



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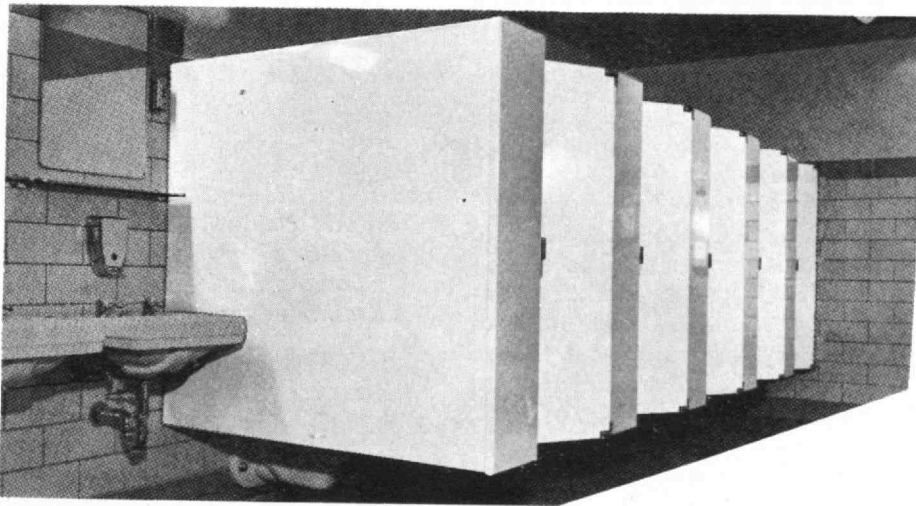
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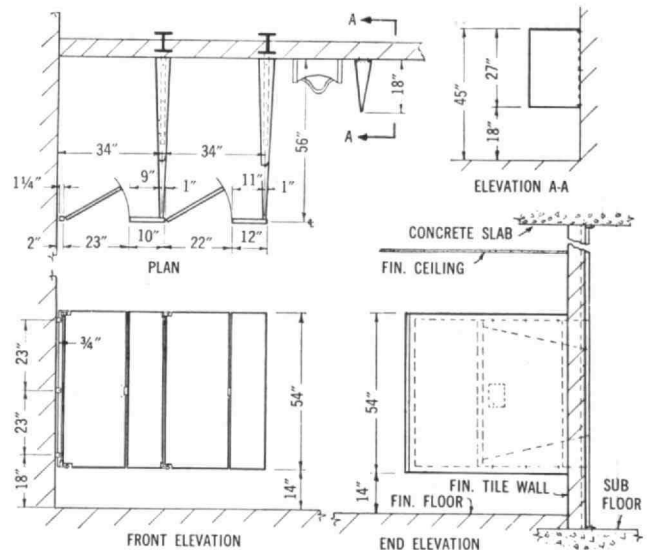
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JEROME P. SCHOOLER, '56

Individuals Noteworthy

(Concluded from page 6)

Honors to Alumni

RECIPIENTS of recent awards and similar distinctions have included:

Lieutenant General James H. Doolittle, '24, the Engineering Centennial Medal and an honorary Doctor of Science degree by the Pennsylvania Military College . . . *Howard P. Emerson*, '28, a Fellow by the American Institute of Industrial Engineers . . . *Philip Reiter*, '32, a Fellow by the American Society for Quality Control;

Richard E. Payzant, '33, the Decoration for Meritorious Civilian Service by the Department of the Army . . . *Robert H. Winters*, '33, to deliver the Commencement Address and receive the honorary Doctor of Laws degree from St. Lawrence University . . . *Mrs. Pauline M. Austin*, '42, an honorary Doctor of Science degree by Wilson College . . . *Frederick G. Roth*, '42, a Member of the College of Fellows by the American Institute of Architects;

Richard J. Reed, '49, the Meisinger Award by the American Meteorological Society . . . *Captain Charles L. Frederiksen*, '53, the Commendation Medal by the U.S. Air Force . . . *Samuel A. Latt*, '60, the Borden Undergraduate Research Award in Medicine at Harvard.

Faculty Newsmakers

AMAR G. BOSE, '51, Associate Professor of Electrical Engineering, was this year's recipient of the Everett Moore Baker Award for outstanding undergraduate teaching. . . . Professor *Carl F. J. Overhage* has been elected vice-president, and Associate Dean *Sanborn C. Brown*, '44, secretary, of the American Academy of Arts and Sciences. . . . *Merton C. Flemings, Jr.*, '51, Associate Professor of Metallurgy, gave the 1964 Charles Edgar Hoyt Memorial Lecture at the American Foundrymen's Society meeting in Atlantic City.

Professor *Jerrold R. Zacharias* received an honorary degree and spoke at Tufts University's commencement. . . . Professor *Paul A. Samuelson* received an honorary degree from Boston College. . . . Professor *Klaus Liepmann* has received the Officer's Cross of the Order of Merit of the Federal Republic of Germany.

Professor *Carvel Collins* has received a Bollingen Fellowship to further his work on a critical biography of William Faulkner. . . . *Emmet J. Larkin*, Assistant Professor of History, has received a George A. and Eliza Gardner Howard Foundation Fellowship to work on a "History of the Roman Catholic Church in Ireland in the 19th Century."

In Admissions Office

PETER RICHARDSON, '48, has become associate director of admissions at M.I.T. He has taught at the Webb School in California and the Putney School in Vermont and served the Pomfret School as college counselor and director of admissions. Mr. Richardson has a master's degree in guidance from the University of Connecticut, and held a Fulbright grant at Athens College in Greece.

Undergraduate Honors

KARL TAYLOR COMPTON Prizes went this spring to *Robert L. Blumberg*, '64, *Richard A. Carpenter*, '64, *Stephen B. Miller*, '64, *Robert P. Popadic*, '64, *Robert H. Scott*, '64, *Janet K. Stober*, '64, and the Summer Study Program at M.I.T. for high school students directed by *Elliott H. Bird*, '63.

The Scott Paper Foundation Leadership Award was won by *William R. Brody*, '65, and the Frederick Gardiner Fassett, Jr., Award by *Lansing Hatfield*, '64.

Stephen B. Douglass, '67, was named the Tau Beta Pi Outstanding Freshman; *David N. Schramm*, '67, and *Alexander D. Wilson*, '67, received Quadrangle Club Awards; and Baton Society Awards went to *Richard S. Bair*, '64, *Glenn S. Orenstein*, '64, *John M. Rainier*, '64, and *Janet K. Stober*, '64.

William L. Stewart, Jr., Award winners included *Robert Z. Bachrach*, '64, *Howard M. Brauer*, '65, *John M. Davis*, '66, *Barbara A. Desmond*, '67, *Ronald L. Gilman*, '64, *Lansing Hatfield*, '64, *Richard L. Krasin*, '64, and *Amiel Shulsinger*, '64.

Military Honors

SUPERIOR CADET awards from the Department of the Army went this year to Cadet Major *Lawrence Castro*, '64; Cadet Sergeant *John R. Murray*, '65; Cadet Corporal *Edmund M. Notzon, 3d*, '66; and Cadet Private First Class *Richard A. Simpson*, '67.

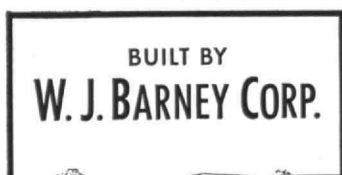
Professor of Air Science Awards were won by Cadet Lieutenant Colonel *Aubrey A. Grey*, '64; Cadet First Lieutenant *John D. Edgar*, '65; Cadet Technical Sergeant *Harold C. Barnes*, '66; and Cadet Airman Second Class *Herbert R. Schulze*, '67.

Midshipman Lieutenant *Michael S. Drooker*, '64, received the Naval Institute Award.

Athletic Honors

M.I.T.'s outstanding athletic honor, the Clifford Award, went this year to *John T. Moter*, '64. The Admiral Edward L. Cochrane Award went to *Michael R. Williams*, '64, and the Eastern College Athletic Conference Merit Medal to *Martin T. Poe, 3d*, '64.

Robert N. Harvey, '64, was named Manager of the Year.



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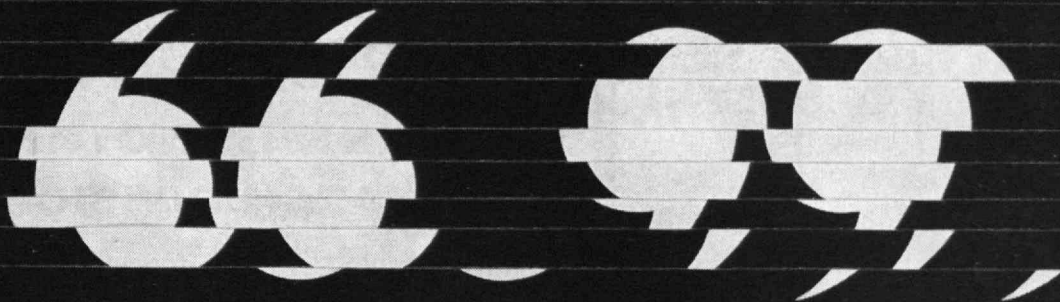
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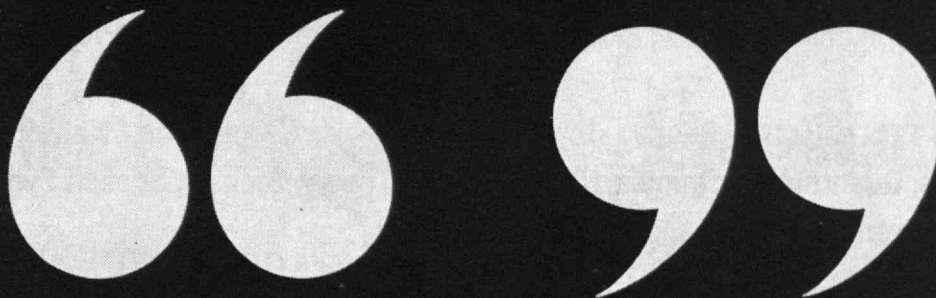


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The secret: a concept which combines the best features of exclusive, adaptive and co-channel signaling techniques. The result: a random access, discrete address system which provides highest subscriber capacity with maximum frequency conservation.

Here's how Martin's Adaptive RADA system works:

1. When one subscriber dials another, the signal is sent by a co-channel technique which activates the addressee's discrete address code.

2. When contact is established, Martin's adaptive RADA system automatically assigns the subscribers to a channel not in use.

3. Since Martin's adaptive RADA sys-

tem selects **only** channels not in use, all other conversations are excluded from this channel—preventing degradation of voice quality due to multipath.

4. Once the conversation is completed, the channel is automatically freed for other subscribers' use.

Other features of Martin's Adaptive RADA system include:

1. CO-EXISTENCE WITH CONVENTIONAL UHF/VHF COMMUNICATIONS EQUIPMENT—since the adaptive system uses narrow channel signals, they can be more easily assigned to avoid interference with other users, and in case of conflict, the system will automatically "skip" the occupied channel.

2. AUTOMATIC POWER AND LEVEL CONTROL—automatically adjusts transmitter and receiver power to the optimum power necessary to complete the radio link. Thus the same adaptive channel may be used and re-used outside the call's transmission area.

3. AUTOMATIC SEQUENTIAL SEARCH—Martin's range extension transmitters automatically search out and locate any address—lets you dial any subscriber direct, whatever his location, without needing to know his "area code." Overlapping coverage of these range extension transmitters also provides alternate routing whether users are stationary or mobile—increases survivability and reliability of the system.

Martin's Adaptive RADA system has been tested and optimized by computer simulation, laboratory experiment and field testing.

It is another example of how Martin Company's new approach to old communications problems is producing better electronic systems for our country's defense.

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Communications Privacy, Mathematical Modeling, Stochastic Processes.

ELECTRONICS Phonon Interaction, Pattern Recognition, Network Syn-
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Data Retrieval.

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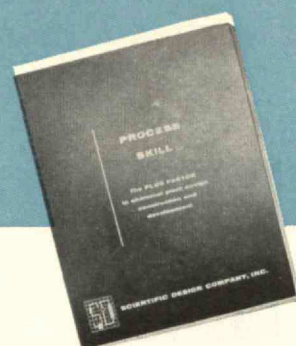
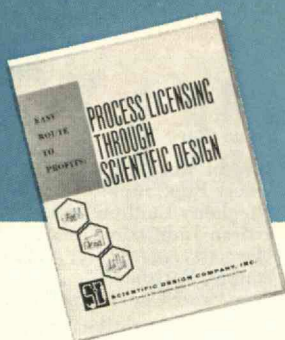
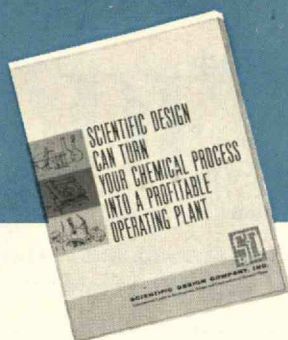
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DEVELOPER

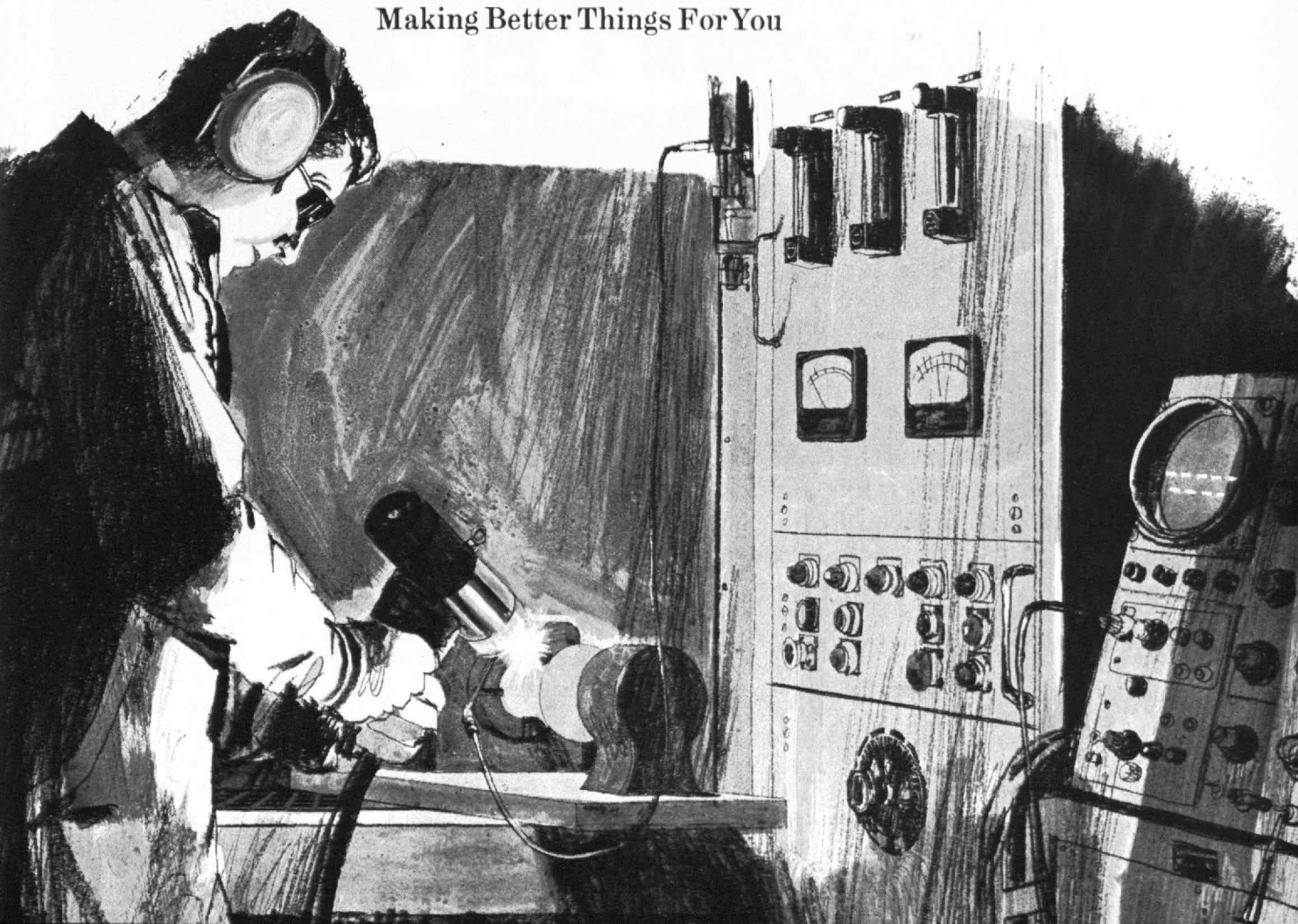
This man is producing a flame *three times hotter than the surface of the sun!* He's a process engineer with the Manufacturing Development section at the General Motors Technical Center, and he's operating a plasma jet torch. The 30,000-degree flame is so hot that it melts the toughest heat-resistant metals so that they can be sprayed like paint . . . and provide a protective coating for the searing heat that rocket parts must undergo.

This is just a sample of the work of over 600 people at GM's Manufacturing Development section. Their job is to improve manufacturing processes by developing new tools and techniques. They develop ideas and make them practical . . . make them work! It may mean a way to make stronger steering gear components, a new way to finish a refrigerator, better techniques for electroplating car parts, an improved method of assembling radio transistors, and there are countless others.

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A Commencement Ritual Rich In Substance and Sentiment

The Institute awards a record number of degrees and stresses their holders' duties to humanity

THE CHAIRMAN of the M.I.T. Corporation recalled at this year's commencement that he had attended about 80 such ceremonies in the course of his labors in the academic vineyard. Those that moved him most, he said, "had the quality of sacraments, repeating year after year the ancient ritual, using a pageantry with the patina of many years, their spoken litany gathering meaning and eloquence year after year by cherished repetition." Running through them, too, he continued, was always "a harmonious mixture of substance and sentiment, with sentiment having the edge."

These qualities marked the Institute's 98th graduation exercises on the morning of June 12 at which 1,248 degrees, a record number, were awarded to 1,180 students (68 of whom each received two). The Class of 1964 consisted of 609 men and 31 women, and in addition to their bachelor's degrees the Institute awarded 131 doctoral degrees, 62 advanced engineering degrees, and 399 master's degrees.

Children and wives as well as parents of graduates were among the 3,000 well-wishers who filled Rockwell for the pageantry, and 700 more in the Kresge Auditorium watched a large-screen television projection of the proceedings. Members of the Class of 1914, the Corporation, and the Faculty filled the stage that the graduates faced, and Steven J. Glassman, the Class President, remarked afterwards that as he walked across that stage, hoping not to trip and ruin the big moment that so many had been waiting for, "the aura of M.I.T. finally came through."

The Substance

The late Norbert Wiener's "spirit of deep commitment to humanity" marked all that was said to the graduates. President Julius A. Stratton, '23, in the day's principal address, called for a new synthesis of knowledge to deal with mankind's complex ailments. Alumni addressing the graduates warned them against letting their education for specific roles restrict them to those roles. And Dr. James R. Killian, Jr., '26, as the final speaker at the luncheon in the Great Court after the ceremony, emphasized again the necessity of shaping technology "to enrich the human condition, and not to impoverish it."

This commencement differed from those of recent years in that the formalities were shorter, there was no orator from outside the Institute community, and in



CLASS OFFICERS at commencement were (from left) Steven J. Glassman, President; Ronald L. Gilman, Secretary-Treasurer; and Allen Jerry Luebbers, Vice-president.

place of a baccalaureate address the graduates chose to hear a distinguished panel discuss the opportunities that tomorrow's world will present in industry, research, government, and education.

The class ranged in age from 19-year-old Stanley Erickson, who received bachelor of science degrees in both Physics and Mathematics, to 43-year-old Clifford B. Moller, who was a mechanical engineer and corporation president before seeking a degree in Architecture. Sixty per cent of those receiving bachelor's degrees expect to go on to graduate school. Four of the men will go abroad on Fulbright scholarships next fall, 10 will soon enter the Peace Corps training program, and two will cover 7,000 miles of the South Pacific this summer as trouble shooters on a defense communications network.

Those receiving advanced degrees included Sheila Evans Widnall, '60, who became a mother four months ago, and who will now become an assistant professor of aeronautics and astronautics at the Institute; Donald T. Langendoen, '61, the first man to receive an M.I.T. doctorate in linguistics; and Dale G. Gladding, '62, the

first to receive the master's degree in the new Inter-American program of the Department of Civil Engineering.

The Sentiment

President Stratton disclosed at the luncheon following the formalities that he had found a shiny new 25-cent piece in his palm after shaking the hand of one of the new graduates, and both Ray P. Dinsmore, '14, who spoke for the 50-year class, and Mr. Glassman discussed "change" of various sorts.

Mr. Dinsmore recalled his classmates' prejudice against educational institutions in Cambridge when they were undergraduates, and cited some of the vast changes in attitudes, equipment, entertainment, and financing that they had seen. He was reminded, he said, of the visitor to Niagara Falls who asked, "What's to prevent it?" Then he went on to wonder whether we are now approaching a time "when only the brightest students will be able to leave the halls of learning long enough to earn a living."

Dr. Stratton remarked that applicants for admission to the Class of '14 had to be at least 17 years old, but the Institute admits younger students now and Mr. Glassman was one of them. As spokesman for the new graduates, Mr. Glassman commented on the constantly changing curriculum, and noted that whereas at other schools students might receive degrees saying "graduated with honors," all that an M.I.T. man's degree could appropriately say would be that he was "graduated with luck."

Dr. Killian concluded the program by observing, nevertheless, that M.I.T.'s tradition has won for it "a brusquely quiet loyalty and affection, usually unspoken, that has made it the radiating center of a world-wide nexus of professional relations and fellowship."

Tomorrow's World

That fellowship was especially evident when the 66th and 70th presidents of the Alumni Association, a dean, and another alumnus undertook to foresee the future for M.I.T. men in industry, research, education, and government. Mr. Glassman was moderator of this discussion, in the Kresge Auditorium the afternoon of June 11, and the speakers were Edward J. Hanley, '24, Chairman and President of the Allegheny Ludlum Steel Corporation; Robert H. Winters, '33, one of the Cana-



SOME MEMBERS of the Class of '14 donned academic robes for the first time. Facing camera is Te-Ping Hsi, '14.

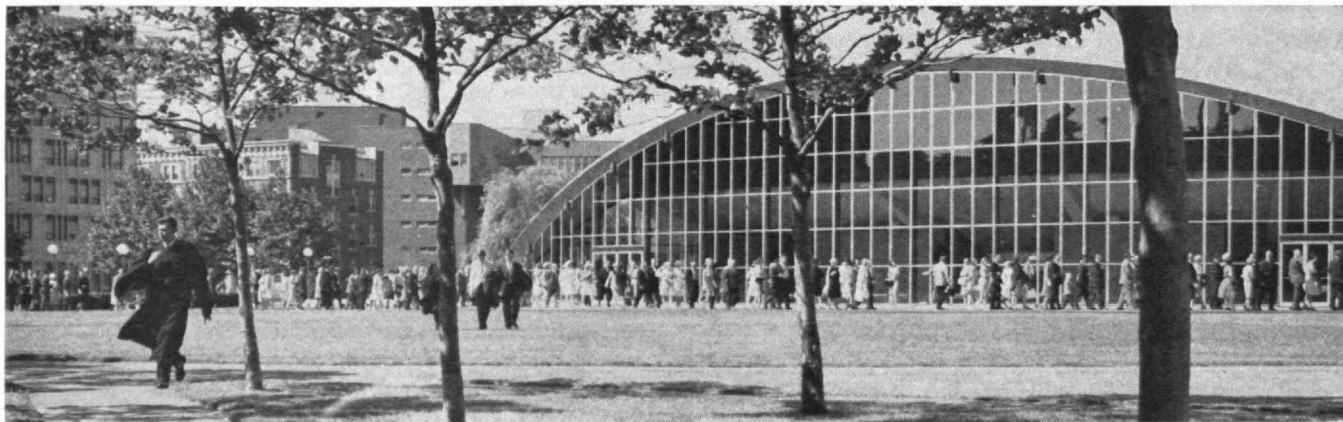
dian economy's leading decision-makers; Howard O. McMahon, '41, President of Arthur D. Little, Inc., and Jerome B. Wiesner, Dean of the M.I.T. School of Science.

Speaking for industry, Mr. Hanley predicted that production will have to be doubled within the next decade because virtually everything will be bigger and more complex. Even so, many graduates of "the world's greatest engineering school" may find themselves involved in detail work which seems beneath their dignity at first, he warned, but this can be "good for the soul" and "a great way of learning."

"As you move up the administrative ladder, you will find that you first deal primarily with *things*; then as you get more responsibility you deal with *people and things*; and finally you deal only with *people*," he told the Class of 1964. "Accordingly matters that involve human motivation, inter-personal relationships, human communications, become of greater and greater importance. . . .

"Today's graduate may be completely up to date in certain technical matters, but he also needs to develop a bit of humility. . . . There are men of skill, wisdom, experience in industry. . . . You are about to be measured by the world not by your ability to learn but by your ability to *do*."

Those who enter research, Dr. McMahon said, will find that the glamor is wearing off now and "researchers
(Concluded on page 42)



THE WEATHER was splendid, and the line formed early. Parents from as far as Hong Kong and as near as the Bos-

ton Police Department saw sons receive degrees, and one four-month-old boy saw his mother become a Ph.D.

The 1964 Commencement Address

In the synthesis of knowledge, as well as in the creation of new learning, we must lead the way

BY JULIUS A. STRATTON, '23

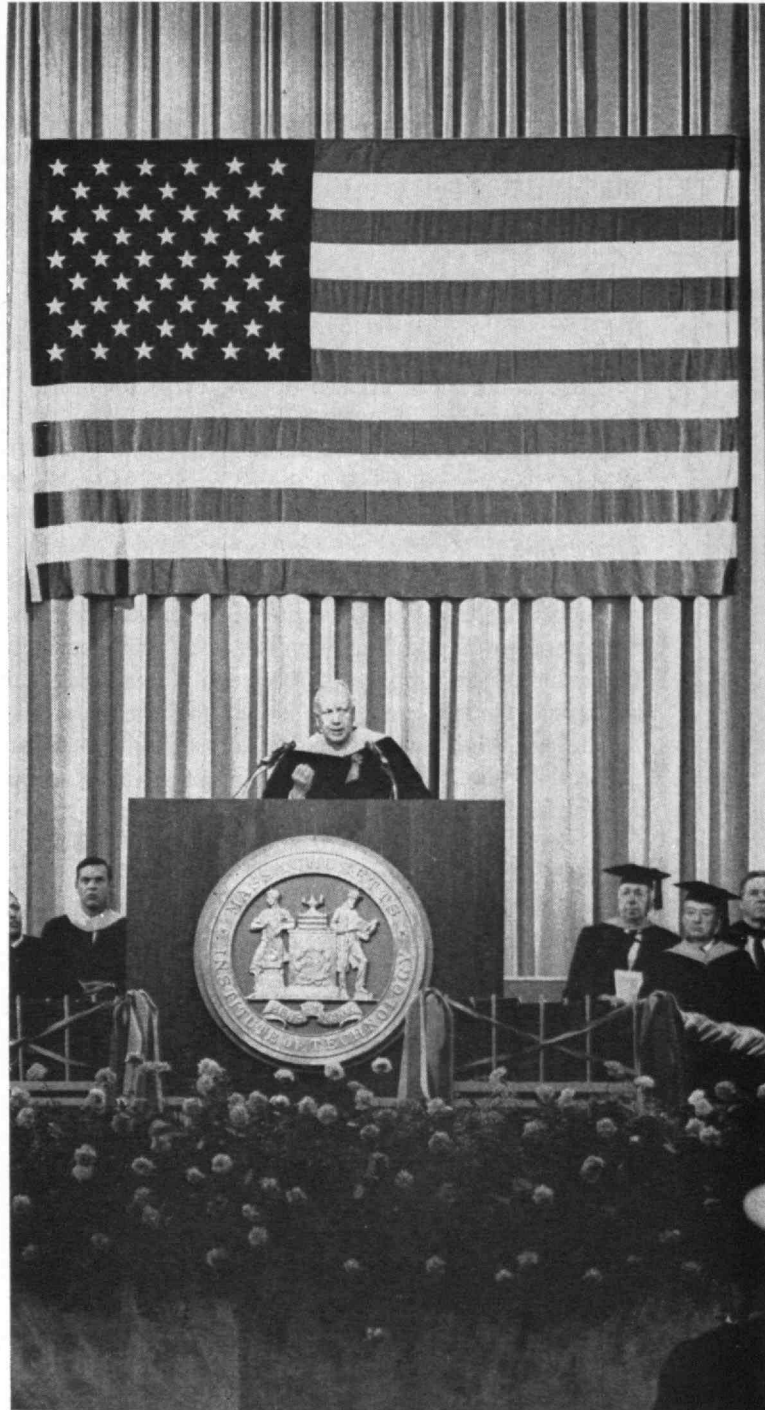
THIS is the first time in 42 years that the President of M.I.T. has been called upon to deliver the commencement address. I am immensely honored. Fortunately also I am untroubled by superstitions, for the last occasion of this kind on our campus ended in a terrible downfall.

By chance that was also on a 12th of June. The Class of 1922 chose the Great Court for their commencement exercises, and some 2,000 people gathered under an enormous tent in the place where we shall lunch a little later on. That day was bright and clear, but during the morning the wind began to blow. And just as President Elihu Thomson, over the sound of flapping canvas, launched into his words of exhortation to the seniors, a tremendous gust struck the tent. The outer poles cracked, and slowly the roof began to settle down upon the heads of the audience. With flying robes and skirts, the Faculty, the students, and their parents made their way out safely; and on the steps of the colonnade, under the dome, diplomas were finally delivered in delightful confusion.

Only seldom does an orator succeed in bringing down the house—and almost never at commencement time. Today I hold out no such expectations. In this great structure, which for some bizarre reason is called the Cage, you may feel secure.

And now, in a more serious mood, I speak to you, who are about to receive your degrees, not as a transient visitor on a strange campus, but as one who out of the experience of many years at M.I.T. has learned at first-hand what it means to be a student here. You have worked hard for this moment. I know the pressures that have been upon you; the seemingly infinite demands upon your capacity to learn; and the tremendous pace set by a quality of students that constantly challenges the Faculty. I believe I know, too, something of the hopes of your families, of their pride in your achievement, and of sacrifices that have made your education possible. You have good reason to be proud this morning—all of you.

You came to us out of a most extraordinary diversity of origins and backgrounds. There is hardly a state in the Union which is not home to some of you, and you represent countries in every part of the globe. You have



Dr. Stratton gave the only address and presented each degree personally to candidates called forth by the deans.

grown up in many faiths and traditions. You have known both wealth and poverty. You have attended small schools and large, public and private, in country districts and in great cities.

Yet for all these differences, you brought with you a certain basic community of interests and abilities. You were moved by much the same hopes and ambitions. Some of you were directed toward engineering or science; others toward architecture, toward economics or political science, toward psychology or management. But all of you, I suspect, shared the same concept of what M.I.T. stands for in the world today and viewed in the same light the role of science and technology in human affairs. It is upon that role, and how it is changing, that I should like to speak this morning.

WITHIN the infinitely complex network of intellectual, emotional, and spiritual forces that make up this strange body we call mankind, one may discern two primitive impulses that trace back to the beginning of time.

The first is the desire to understand—the passionate quest for knowledge for its own sake—about the stars, about matter, about living things.

The second is the urge to do, the drive towards action and mastery of our physical environment.

The systematic interpretation of nature into a framework of law we call science; the effort to convert pragmatic experience and understanding to useful account is engineering.

For countless centuries the quest for knowledge through science has been moving forward, slowly gathering momentum, while the engineer has provided shelter, assured our supplies of food and water, built our roads and bridges, and created our massive industrial technology. And now, suddenly—almost within your own generation—the whole sweeping line of advance seems to have taken fire. In some strange unforeseen way, we have come to a critical threshold, beyond which the forces of technical progress appear to be self-sustaining. The processes of discovery, invention, and production feed upon each other. In every domain of the physical and biological sciences, there is a bursting out into new fields and new theories. The translation of ideas into action is taking place at an ever-accelerating pace, so that the functional line of demarcation between scientist and engineer has almost vanished. From the factories and commercial laboratories of our country pours a mounting stream of new products, new versions of old devices—from jet airplanes to transistor radios, from nuclear reactors to household appliances, from a multitude of new drugs to synthetic building materials. We are at the point of being overwhelmed by the very bulk of our accumulated information, bewildered by the diversity of our manufactures. And we are failing today to assess clearly the implications of these developments for tomorrow.

Yet through this maelstrom of scientific and technological enterprise runs the almost mystical conviction

that somehow every technical advance will contribute ultimately to the good society. Every responsible physicist believes intuitively or subconsciously that each new insight into the structure of matter will stir someone else—some engineer—to the development of a useful piece of hardware; and every engineer, in turn, expects that each new product or service will in some way add to our health, comfort, and material well-being.

There is nothing new in this idea of technology as the driving force of progress. It is an idea that took form during the Enlightenment of the Eighteenth Century and emerged from the industrial revolution of the Nineteenth as a well-defined philosophy. M.I.T. has its historical roots in that concept of the usefulness of science. Nor is there any need for me to demonstrate to this audience by examples how the advance of technology has improved the material condition of mankind.

Yet for all my own faith in and dedication to the work and methods of science, I do not believe that we can any longer afford to take such a thesis for granted; and I fear that a blind confidence in the inevitable good of material progress can lead only to disillusionment. The stupendous revolution of the Twentieth Century is doing more than adding theories, data, and apparatus to the accumulated store of the past. It has provided an entire new dimension to human affairs on a total change of scale.

To use words that you are particularly well qualified to understand, science, technology, and society now form a tightly coupled system. Each new technical advance adds a component to that system. In years gone by we have isolated these components and assessed their usefulness in terms of a specified purpose. We measured the value of a military weapon solely by a military requirement; a new drug by its immediate effectiveness in dealing with a particular pain; a new highway simply by the number of cars it carried; or a chemical waste-disposal plant by the interests of local inhabitants. But now, because such components are coupled into an immensely complex system on a huge and massive scale, it is only by an examination of the impact upon society as a whole that we can pass judgment on the degree of progress.

To draw upon a biological analogy, I am saying that we must advance from the anatomy of components to the physiology of the organic whole—which indeed is now the society itself. One may prescribe an aspirin for a headache or build a turnpike to ease a traffic jam. But the headache may be merely an isolated symptom of a deeper disorder—a disease that may be identified only by a diagnosis which itself is the product of many specialists working together.

And so, too, our society—the body politic—is subject to old, chronic disorders and to new ailments. These diseases of the system are emerging in increasing number; and we must be courageous in recognizing that they are themselves the by-products of our highly technological environment.

Consider the transformation of our cities—the physi-

cal and social degradation of large areas—the loss of serenity and beauty. We have never before produced so many cars or such fast airplanes; yet transportation in the United States is rapidly approaching a point of crisis. The shift to automation in industry is accelerating and will have profound effects upon the character of our labor force, upon its training, and upon its security. We are polluting our air and our water. The pesticides which we are employing on a mounting scale are a boon to agriculture and a threat to the remainder of our natural resources. We find extreme poverty in the midst of affluence. The problem of the economically deprived citizen, be he black or white, is one of training and education to cope with a highly technological and rapidly changing society.

These are but a few examples. I could cite many more—all too large, too complicated, too sophisticated to be conquered or even arrested by sporadic investigations and isolated research projects. Of course science has generated these problems, and we can be equally confident that science can help us to alleviate and resolve them. But our efforts must now move to a higher plateau. We can no longer afford to nibble away piece by piece at the problems of the modern city, of transportation, of underdeveloped economies, of automation, or of disarmament. We indulge excessively in unco-ordinated conferences, surveys, and studies that on the whole are highly unproductive. Our ailments are vast and complex, and they will yield only to planned, collaborative attacks focused on clear objectives and leading to concerted action.

One of the charges that has been most commonly leveled against science is that progress is leading increasingly to the fragmentation of knowledge and the proliferation of a multitude of specialties. But these great new socio-technical problems and the systems they represent are now also generating strongly countervailing forces toward new unities, bringing together many different resources, and giving rise to a new synthesis of knowledge. For in every instance, success will depend upon the joint contributions of physical and biological scientists, of economists and political scientists, of engineers and architects, of historians and philosophers. The task of articulating or welding together these components of learning into systems of understanding offers the highest intellectual challenge of our time.

As I have reflected on these matters, as I have pondered about how all this is to be accomplished and where, it has seemed to me that there exists nowhere at the present time any one institution or specific kind of organization which is in a position to undertake alone this monumental task. There is to my knowledge no single agency of government which has the necessary diversity of resources and the freedom of action. By their very character these problems lack the motive of profit which is the essence of private enterprise; and because they lead inescapably from the intellectual domain into



Robert H. Winters, '33, carried the mace. Beside him in the procession was Massachusetts Governor Endicott Peabody.

the field of action, they present definite risks and perils for the university.

And yet it is only within the framework of the modern university that one finds the wide range of interests, a common ground for the exchange of ideas, a forum of discussion for scholars who draw upon the arts and the humanities as well as upon science and engineering. This is particularly true of an institution of the character of M.I.T. I do not believe that we can escape the responsibility of taking part in the solution of problems which touch most deeply upon the total welfare of our society. In the synthesis of knowledge, as well as in the creation of new learning, we must lead the way. And though at times we shall find ourselves drawn more deeply into the main stream of contemporary affairs, we shall continue in the process to educate with relevance to our age. This has indeed been our historic mission.

I have wanted in these few remarks this morning to give you a broader and perhaps a new insight into the changing role of science and technology. The essence of this change lies not so much in the expanding scale of discovery and application; it lies rather in the complete penetration of science and technology into every domain of human affairs.

But principally I want you to understand that these developments have brought a new order of responsibility for the consequences of progress to our society as a whole. Some of this responsibility falls upon our institutions—upon government, upon industry, and upon the university. But in a free society the burden of obligation rests ultimately upon you as individuals. You are in a superlative position to meet the technical challenges of our day. But you owe something more to the common account. You must be ever mindful of your own deepening responsibility, both to the profession you have chosen to follow and to the society which will look to you for positive action. Your life will be productive in proportion to the goals that you achieve; rewarding in proportion to your commitment to all that is of value; and full in the satisfaction that the world will be better for your efforts.



Commencement and Alumni Days are really family days at the Institute. Here are members of the Class of '39 group

seeing how the nuclear reactor on Vassar Street is controlled. Thirty-niners spent the weekend in the Baker dormitory.



That men are graduated "with love" from M.I.T. (as well as "with luck") was pointed out when (from left) Paul J. Car-

dinal, '24, Robert C. Casselman, '39, and Ray P. Dinsmore, '14, announced their classes' gifts on Alumni Day, June 15.

Alumni See How Engineers Help Doctors

Three classes announce gifts totaling \$922,131, note the Institute's progress, and hear Faculty discuss the servomechanisms within humans

STEPS toward a synthesis of knowledge of engineering and human health were reviewed at M.I.T. throughout Alumni Day on June 15. The speakers included chemical, electrical, and civil engineers, biologists and physicians, and they described applications of new concepts and devices to problems as ancient as premature birth and as modern as radioactive fallout.

The day began for many Alumni with a tour of the M.I.T. nuclear reactor and ended at a "Pops" concert in the Kresge Auditorium. During the customary luncheon in the Great Court, three classes announced reunion gifts totaling \$922,131, and President Julius A. Stratton, '23, observed that:

"A great university—like a great city—can see its history and its progress, in part, in its architecture. Its buildings, like the rings of a tree, provide visible evidence of its stages of growth. Yet the true measure of a university is found in less tangible things—in the achievements of its alumni, in the character of its scholarship, and, above all, in the effectiveness of its teaching and the aims of its educational plan."

Dr. Stratton spoke affectionately of the architect of the main buildings, Welles Bosworth, '89, who celebrated his 95th birthday this spring in France, and introduced two of the architects of less tangible M.I.T. things, Deans George R. Harrison and John E. Burchard, '23, who have retired this year.

He then reviewed the studies of the undergraduate curriculum which have been under way, stressed the importance of the fund for basic research provided by Alfred P. Sloan, Jr., '95, and spoke of the need for further improvement in dormitory accommodations to provide "an environment in which education may grow and flourish."

Alumni Contributions

Robert H. Winters, '33, presided at the luncheon as the Alumni Association's 70th President, and called on Ray P. Dinsmore, '14, to announce the \$201,031 gift from his class, Robert C. Casselman, '39, to report a class reunion gift total of \$210,000, and Paul J. Cardinal, '24, who reported contributions from his classmates of \$511,100.



Drs. Albert O. Seeler (left) and Irwin W. Sizer were made honorary members of the M.I.T. Alumni Association.

Mr. Winters announced that Alumni Fund gifts thus far this year had reached \$887,000, and that D. Reid Weedon, Jr., '41, would serve as the Fund's chairman again next year. Chairman James R. Killian, Jr., '26, of the Corporation, acknowledged the gifts and reported that M.I.T. had received \$20,000,000 since July 1, 1963 from private sources, the highest such sum in the Institute's history.

"Can any of you think of any place in the world where those dollars could be put to better use?" Donald F. Carpenter, '22, asked when he was introduced as the 71st President of the Association.

Advances in Physiology

Before gathering in the Great Court, the Alumni present had glimpsed some of the work pertinent to health that is now under way at the Institute, when:

► Professor Edward W. Merrill, '47, showed colored motion pictures of blood flowing through tiny glass fibers, and explained how chemical engineers' interest in the properties of complex, flowing liquids is being utilized in medical research. So, too, is a viscometer developed in the course of work on ballistic missiles for the Polaris submarine.

► Dr. Constantine J. Maletskos, '42, of the M.I.T. Radioactivity Center, explained how examination of the skeletons and the air exhaled by watch-dial painters and other persons who were exposed to radiation decades ago is being used to set safety standards in the nuclear industry. He traced, too, the calculations that are made to determine fallout's contribution to radiation that everyone must withstand.

► Assistant Professor Philip A. Drinker, '61, demonstrated a respirator for infants who have respiratory difficulty, and reviewed the biological, mechanical, and practical problems that its designers faced. Signals from the baby's own efforts to breathe are employed to synchronize the negative and positive pressure in the respirator chamber, yet the apparatus is so built that the infant

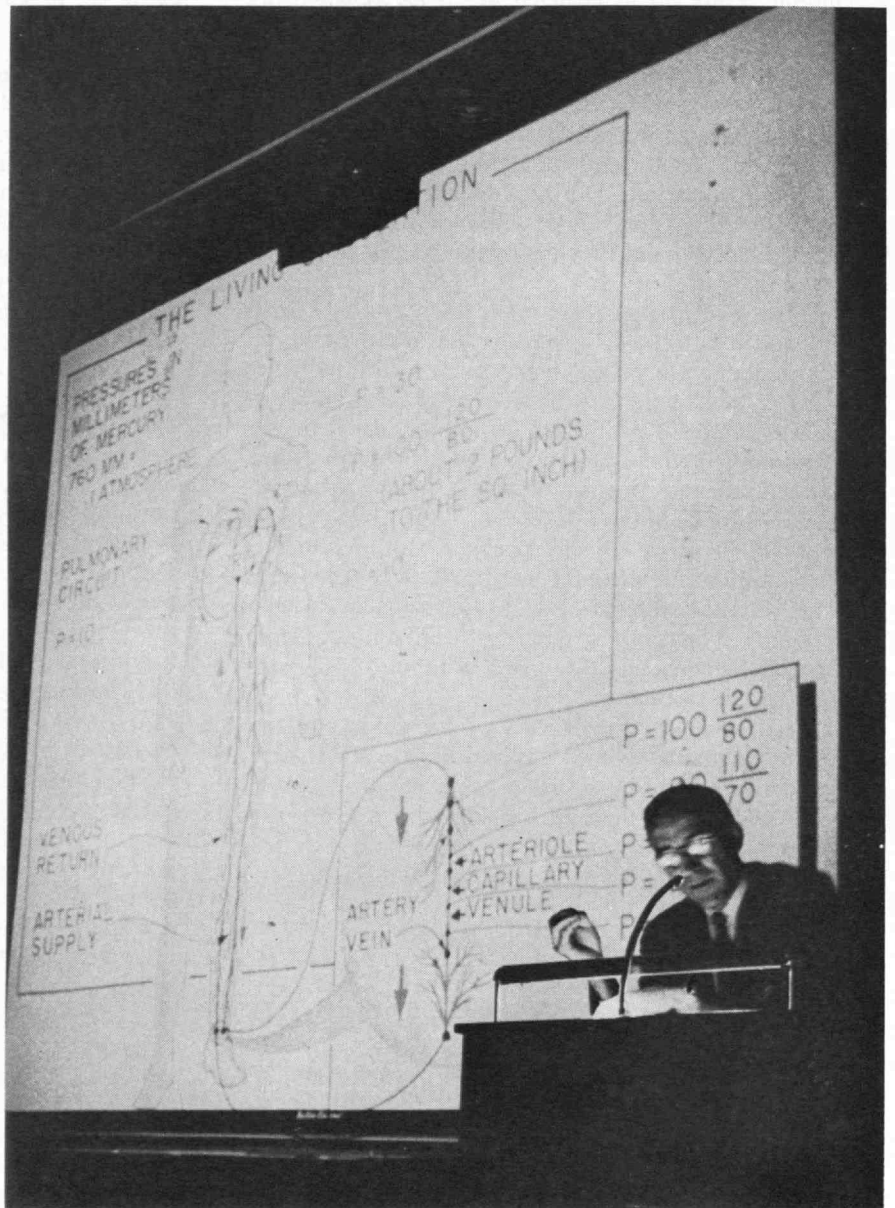
(Concluded on page 44)



Servomechanisms within us were described to M.I.T. Alumni Day guests by (from left) Professor Hans-Lukas Teuber, Dean Emeritus George R. Harrison, Dr. Lawrence Stark, and Professor Nevin S. Scrimshaw.



A civil engineer, Philip A. Drinker, '61, demonstrated a respirator for a newborn baby, and a chemical engineer, Edward W. Merrill, '47, talked about the flow of blood during the reports on health research at M.I.T.



Conversation With a Senior

*He would love to spend the rest of his life in space research
—and money means less to him than when he was a freshman*

KENNETH DZUGAN, '64 (pronounced "Jugan"), came to M.I.T. from a Cleveland high school in 1960 on an Alcoa Foundation Scholarship, and was interviewed this spring by The Alcoa News, a publication of the Aluminum Company of America for its employees and their families. Some of his replies to its editor's questions follow:

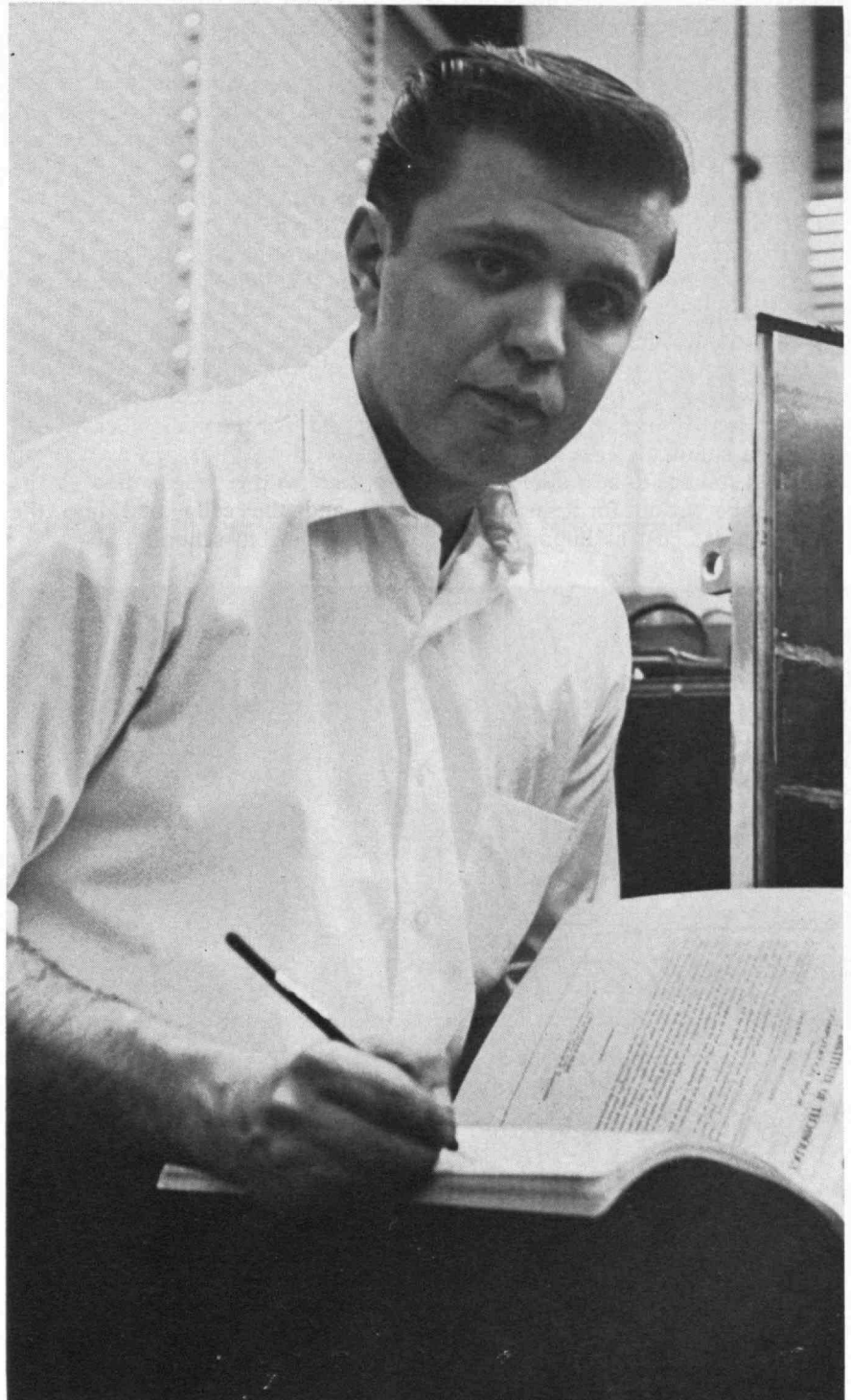
WHEN I was in high school, they sort of spooned things out a mouthful at a time and we took it in, and that was it. They didn't go at a very fast pace and I never had a hard time. M.I.T. was completely different. It comes out a lot faster. Here I have a certain basic choice that I can make—what field that I can go into. And they say, "Okay, you want to go into this; you take these 10 courses." Everything else is left up to you.

You have a fairly wide range, and you can take courses which you would like to learn a little bit about. Mine happens to be music. It's nice to do something like this once in a while, or just sit down and play the cello now and then.

If high school is so different from college, should we change the way we prepare the high school graduate for college?

Not really. I think in a way it's a good thing, because at that stage of the game there are very few kids who really know what they want. I didn't. I thought I did, but I really wasn't too sure. I think that the variety you get in high school is a very good thing because it gives you a broad general background.

In my high school in Cleveland, there have been a good many changes. They've put in a different physics course, for instance. They have a chemistry course which is brand new. They are teaching fundamentals of calculus now, something



Kenneth Dzugan overcame a speech block by door-to-door selling before entering M.I.T. Now he plans to go on to graduate work in physics.

which I never had in high school, and I think it would have helped.

What about the way a family shapes a child toward college?

Well, from my point of view, my dad has worked for Alcoa for the past, I think, 26 years now, and he's been in the factory all his life. [George Dzigan is an industrial truck driver in Alcoa's Cleveland forge plant.] And sort of all the way through, he just felt that there was probably something better than this. He didn't really say why, but he just wanted me to go to college. And he just sort of pushed me, right up until the point that I got in school. After that I was on my own.

Did he give you any guidance on what to study?

He left that totally up to me, which I think is a good thing. I am presently doing some tutoring work in high school physics, and I've seen parents who were trying to force their children into their own mold. Just because father is a doctor doesn't mean that son has to be a doctor. He might not be cut out for it; he might not like it. It's just as important to

like what you're doing as it is to be able to do it well.

Why did you choose science over music?

I liked music and science equally well. But if I went into music, science was totally lost. By choosing science my music is always sitting there, and that's something that I never could give up.

How did you happen to pick the cello?

It picked me. Back in the fourth grade, I took something that was called the Seashore Music Test. A month later the principal called me upstairs and asked how I would like to play the cello. She said it was that thing over in the corner. I said, well I'm not sure, meaning I don't know. So she said, fine; I'll call your mother and tell her you're bringing it home. I was so mad that I wouldn't take the thing out of the case for about three weeks. A lot of people where I used to live still remember me because of the cello. I would be on my bike with a wagon tied to the bike and the cello tied into the wagon going to school.

Moving on to college; could you characterize the college experience?

Well I can probably say at M.I.T. it's been the most difficult and the most enjoyable four years of my life. Like most of the freshmen in my class, I had gone to an average high school and had never really been forced to work. Everyone felt, well it's going to be hard for the other guy, but not me. We soon learned that it's hard for just about everyone. First term I spent almost all of my time studying. I had a very difficult time.

Then I started sophomore year and got into electromagnetism. Well this went a little beyond everyday experience. I found that I was having a more difficult time, and my grades were going downhill.

Then I started junior year and the junior physics labs. Suddenly my courses found this meaning that they had to have in terms of my work. You can pick your own lab project, and I basically did mine because my instructor said it wouldn't work. But it did. He was happy with it. At the time I really didn't know all that I needed to know. But intuition helps a great deal in physics.

Things went well in the lab, and as a result I was offered a job in the M.I.T. cosmic-ray group working on one of the satellite programs.

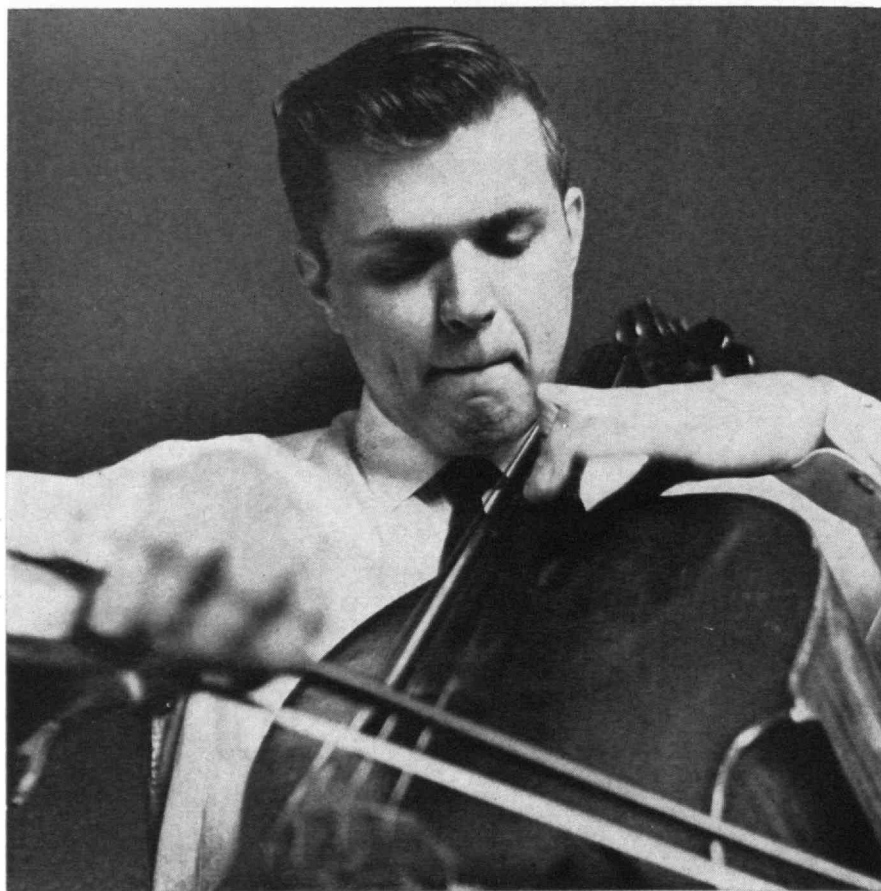
That was last summer when you had the job?

Yes, and I'm still on that job about 12 hours a week. I'm working on the M.I.T. gamma-ray package that's going into the orbiting solar observatory, which hopefully will go up in December, 1964. Our part of the project is a gamma-ray telescope, and this is just something which sort of looks around in space and tells us how many gamma rays we have coming from each direction in space.

There will be a telescope going up sometime, hopefully, in 1965 which will use a spark chamber. The spark chamber is what my thesis work is on right now.

You have another part-time job, do you?

I have three altogether. I help keep the Boston Community Music Center building clean, and that takes maybe another 10 or 12 hours a week. In return they give me an apartment to live in and free cello lessons. As I



His studies, three part-time jobs, and his cello have kept him busy.

said, I also tutor high school physics students.

This is my second year of living at the Center and my third year of studying here. The school gets money from individuals and from the United Fund. They have some very good teachers, and the students pay very nominal fees and there is some scholarship help available.

Are you completely supporting yourself now with your three part-time jobs?

With a slight amount of help from home, I'm just about managing now, and of course I have the scholarship from The Alcoa Foundation. And I have a John Hunting Scholarship, which is available to students from my home county in Ohio.

What's next?

Graduate school. I've applied to several different spots. To be perfectly honest with you, I'd love to go to M.I.T., but I'm not going to get in with my grades. I mean, the amount of part-time work that I've done and really high grades just don't go together. My average right now is sitting between B and C. And although M.I.T. will let its own undergraduates in, it likes their grade average about halfway up between A and B.

What's your graduate work going to be in?

In space physics, the area I've been with the last year and a half up in the lab. I'd love to spend the rest of my life doing it.

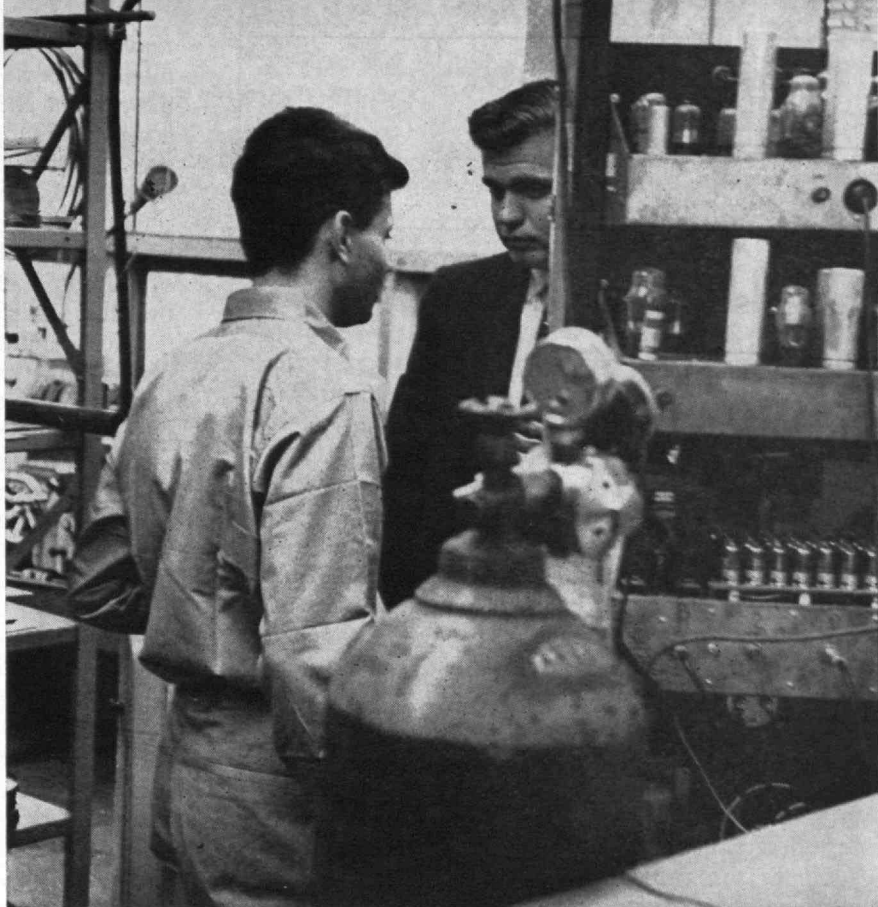
Do you plan to go on to get your doctorate?

Yes. I'm not going to get a master's, I'm going to go right straight through and get my Ph.D.

In graduate school there is much less of a problem getting financial help. You generally get an assistantship, which normally involves 20 hours of work for the school per week. For that you generally get tuition, plus maybe between \$1,500 and \$2,200 a year, which takes care of you quite nicely in graduate school.

Then what?

I'll probably end up at some college somewhere doing research work and teaching. I could, no doubt, go on into industry and make several thousands more per year, but money doesn't mean that much to me. I



He has worked on a package to go into an orbiting solar observatory.

thought it would, you know. When I first came to M.I.T., I could just see it—boy! There's that diploma sitting there with dollar signs all over it. But it's lost interest for me in a certain sense. I've had to live narrowly for the past several years, and as long as I have enough to raise a family, send my kids to school, and do what I want to do, I'll be perfectly satisfied.

Do you have any thoughts on the broader questions which society is wrestling with today?

Well I do in certain areas. Take communism for one. We've talked about this at M.I.T. in some of the courses that I've had. I think as more and more people in this country and more and more people in Russia start to learn more about different cultures, this is going to solve a lot of our problems.

You're optimistic, considering the tensions in your own country?

Yes. Here, too, I say let's look at the things that are the same in man and not the things that are different. This is something that sounds so utterly glorious, it sounds just about foolish, but I think it's true. This sort

of social prejudice—if you want to call it that and be nice about it—I think has been inbred in man. We're going to have to bring up a generation which doesn't have this bred into them.

What about the social and economic differences brought about by differing educational levels?

We're going to find this difference in education between every generation. I once met a man who graduated from M.I.T. back in 1905. He had a doctorate, and he told me that when I had my bachelor's degree, or some time before, I would have a great deal more knowledge than he had ever heard of.

In my first term at M.I.T. we went through the first seven chapters of freshman calculus. The whole book is 18 chapters long. The year after I was a freshman, the new freshman class did the whole book in two terms.

How do you look at the problems of the world today?

Most people seem to take a certain amount of pleasure in looking for things that are going badly instead of

(Concluded on page 48)

M.I.T.'s Faculty Considers Revision of the Curriculum

THE M.I.T. FACULTY will vote next fall on extensive changes in the undergraduate curriculum that have been recommended by a special Committee on Curriculum Content Planning headed by Professor Jerrold R. Zacharias. This committee's report and one from the standing Committee on Educational Policy headed by Professor Harold S. Mickley, '46 (concurring in substantially all of the curriculum committee's proposals for change) will be studied throughout the summer.

Professor Zacharias' committee conducted the first full-scale review of the M.I.T. undergraduate education program in 15 years, and recommended that the Institute devote a significantly greater portion of its resources on a continuing basis to planning and research regarding undergraduate education.

"Under the present system," the committee said, "planning often is done by a teacher who has to cope with so many short-range administrative duties that he finds it hard to be considering, at the same time, radical long-range changes which might be desirable.

"Most universities do not recognize as much as they might the high order of intellectual effort such planning demands. Knowledge is growing so rapidly that methods and patterns which served for our own education no longer suffice to bring today's student to the frontiers of knowledge during his early, and often most creative, years.

"Substantial parts of traditional subject matter must be omitted. New material and new approaches must be devised. New and shorter paths must be built to concepts and insights that are currently important.

"Proper preparation and planning cannot be mere 'scissors and paste' work—the choice of a topic or the choice of a text. It implies fundamental rethinking and reworking of subject matter.

"It is like composing music, and often as difficult. One is inventing an intellectual experience that is not only new to one's audience, but to oneself as well."

Earlier Branching Proposed

The curriculum committee's primary aim was to reshape the undergraduate education program to reflect new factors and influences in contemporary life. The changes it recommended would not make that program any less rigorous or demanding, but would revise requirements of freshmen and sophomores to give them earlier opportunities in particular areas.

The Institute now requires all students to take two years of a specific sequence in physics and in math and one year in a specific sequence of chemistry. These are called the "core" subjects. The curriculum committee recommended that the common core be provided by

requiring a year of a specified physics sequence and a math sequence and a half-year of chemistry and that the student add to this core by his own selection from a series of subjects designated "science area electives" and "elective laboratories." Elective subjects would be available in math, chemistry, physics, and other areas such as biology and engineering science. The effect would be to relax somewhat the highly specified nature of the core and give students the opportunity of earlier branching into areas that interest them individually.

The committee's report noted that the Departments of Mathematics, Chemistry, and Physics already have initiated new experimental core subjects which would fit the recommendations. The committee urged that such efforts be continued with emphasis on interdepartmental planning. Numerous subjects presently taught in M.I.T.'s various science and engineering departments were surveyed by the committee and found to have potential as science area electives or elective laboratories.

To achieve still further flexibility, the committee recommended that M.I.T. departments offer modified sequences of their own subjects to students who do not want a full professional course and who would receive, at the end of four years, bachelor of science degrees without department specification. Still another recommendation was that the general Institute requirement for a bachelor's research thesis from virtually all undergraduates be made a department option.

Reasons for Revisions

In reviewing the recommendations, the permanent Committee on Educational Policy noted a series of trends, factors, and influences bearing on M.I.T.'s curriculum.

Not the least of these is the quality of students admitted in recent years. As more and more students apply, the selection process is, of necessity, more competitive and the students finally selected are more competent. Moreover, high schools and preparatory schools are giving these students an increasingly deeper grounding in science and mathematics.

Students also tend now to delay their choice of a profession until later in their educational experience and more and more are going on to graduate study. The policy committee noted, too, that it has become an essentially accepted fact that in virtually no area can the entire body of knowledge available be taught in only four years. This means the student must be given the fundamentals and the inspiration that will enable him to continue his own self-education in later years. "The student must be taught to teach himself," Professor Mickley's committee said.

Finally, scientists and engineers are increasingly called upon to shoulder social and political responsibilities in the nation and the world and this implies a sound grounding in the social sciences and humanities.

The format of the curriculum committee report was unusual. Instead of using the ordinary formal style of a committee report, the group used a fictional "dialogue" among a group of make-believe professors, a make-believe dean, and a make-believe outside observer. Each character in the dialogue represented some point of view and the effect was to expose all aspects of curriculum revision in a clear conversational tone.

Another Use for the Laser

M.I.T. RESEARCH reported this spring has shown how lasers can help solid state physicists study acoustic waves in solids. Very intense hypersonic waves, at frequencies higher than any generated before, have been produced within crystals by light from a giant-pulse ruby laser.

A burst of 6,940 Angstrom light lasting 30 billionths of a second from such a laser with a power output of 50 megawatts has produced hypersonic vibrations of 60 million cycles per second and one kilowatt intensity within a sapphire crystal. Similar effects have been observed in quartz, and the experimenters believe that still higher frequencies can be produced in diamonds. They point out that the technique is applicable to a wide variety of substances, and that in crystals at low temperatures pulses of less intense radiation should result in generation of more moderate and controlled acoustic waves.

Hypersonic vibrations have been typically produced heretofore by generating a voltage across piezoelectric quartz. Using these generators to create desired vibrations in other materials is difficult because hypersonic vibrations do not travel well between two different materials. By focusing the laser's light at a point within the material rather than on its surface, the M.I.T. group has produced acoustic vibrations in solids at very high frequencies and in a different way. This should be helpful to explorers of the relationship between the thermal, electrical, optical, and mechanical properties of solid matter and its atomic structure.

The electrostriction caused in sapphire by the pencil-thin beams of monochromatic light from the laser set up sound waves and amplified them in a manner somewhat similar to that in which light waves are amplified in lasers. The sound waves became so intense that they caused extensive internal fractures. To detect the hypersonic waves (at far too high a frequency to be audible to human ears), the experimenters observed and compared the frequencies of the laser light that was scattered in different directions.

Raymond Y. Chiao, G. Provost Charles H. Townes, and Boris P. Stoicheff, a visiting scientist from the National Research Council (Canada), described the "Stimulated Brillouin Scattering and Coherent Generation of Intense Hypersonic Waves" in the May 25 issue of *Physical Review Letters*. Their work was supported in part by the National Aeronautics and Space Administration, and in part by the Office of Aerospace Research, U.S. Air Force Systems Command.

Computer Program Copyrights

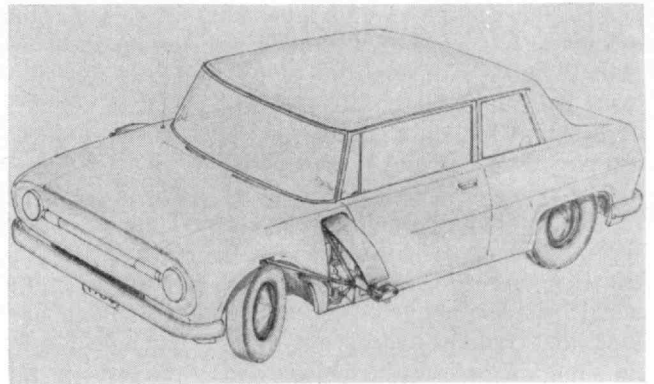
JOHN F. BANZHAF, 3d, '62, an honor student at the Columbia University School of Law this year, has been notified by the U.S. Copyright Office that copyrights can be granted to computer programs. Mr. Banzhaf has written programs for a legal study, and his first application for copyright protection was rejected. He persisted, citing numerous cases in support of his position, and now has been credited by a spokesman for the Copyright Office with being "very helpful" in bringing about a change in its policy. Like motion pictures, Mr. Banzhaf said, computer programs may be leased and rented in the future under copyright law.

Commuting Made Delightful

M.I.T. STUDENTS of Mechanical Engineering proposed a way this spring for commuters to whiz along in separate cars yet leave the driving to computers.

A class of 36 juniors tackled the problem of designing a safe, fast, feasible commuting system that (1) would not require any patrons to transfer from one vehicle to another one en route, and (2) that could be superimposed on a city's existing roads and mass transit systems. Their answer was a "Commucar" and a new kind of electrified roadway.

The Commucar would be a light, compact, electric auto that could be driven on any road and parked anywhere. It would also be suitable, however, for use under automatic control on special, 60-mile-an-hour main arteries. The Commucar would have arms on each side through either of which it could draw power from an electric siderail while it was on a Commucar through-



way. The arm-siderail connections would also steer the vehicle and perform the switching at junctions.

These throughways might be in median strips in some areas and elevated above existing roads and streets in other areas. Since the Commucars would be small, light vehicles, the structures required for Commucar lanes would not have to be as heavy, expensive, and unsightly as those needed for elevated trains.

Before being admitted to a fast Commucar traffic lane, each vehicle would undergo a 15-second, automatic safety check. Its driver would indicate his destination by inserting a punched card into a box, and from then until he got there his car's speed and route would be determined automatically.

At some terminals along Commucar roads, control of the vehicles would be returned to the drivers so that they could then proceed as they wished on other roads (with their batteries freshly charged from the power in the Commucar road siderails). At other terminals, if the drivers wished, their cars might be run directly into automatic parking garages.

Commucar throughway operators might rent cars to patrons. A man might then go to work in one vehicle and go home that evening in a different one, summoned for him when he wanted it from an automatic garage. Private owners of Commucars might also use such throughways by paying monthly tolls automatically computed.

The class taught by Professor Robert W. Mann, '50, and Assistant Professors Dwight M. B. Baumann, '57, and Ernesto E. Blanco was given this assignment as an exercise in solving real problems.

RLE's Energetic Electrons

TWO DEVICES for producing dense, hot, ionized gases, or plasmas, were described this spring to representatives of government agencies reviewing work in the Research Laboratory of Electronics (RLE) at M.I.T. If electrical power is to be generated by controlled fusion of atomic nuclei, Assistant Professor Ward D. Getty, '62, pointed out, extreme plasma temperatures will be required, and these devices are being used in studies of plasma production and heating.

One is a beam-plasma discharge apparatus (BPDA) developed under the leadership of Professor Louis Smullin, '39, in which a pulsed beam of electrons is passed through a cloud of hydrogen gas to produce a plasma and heat its electrons. The BPDA is six feet long, and has an electron gun at one end, a cylindrical solenoidal magnet about a foot in diameter at the center, and an electron collector at the other end. Hydrogen gas flows into a vacuum tube along the center of the magnet and is ionized with the electron beam from the gun. Plasmas with densities of up to 10 trillion electrons per cubic centimeter and with electron energies of nearly a million electron volts have been produced for periods of several microseconds with this BPDA.

The other device described is an electron cyclotron resonance discharge unit developed by Thomas J. Fessenden, '61, as part of his doctoral studies. In it, electrical energy of microwave frequency is pumped into a metal cylinder, about two feet in diameter and a foot long, that contains hydrogen gas. A magnetic field is set up along the axis of the cylinder, stray electrons in the

gas become trapped in this field, and begin whirling around the axis of the cylinder with a frequency in tune with that of the microwave pumping power. When these energetic electrons collide with hydrogen atoms, their nuclei and electrons are disassociated to produce a plasma. Further disassociations occur as more electrons are freed and set to whirling, and a portion of the hydrogen cloud that is converted into plasma is held trapped in the magnetic field.

With this apparatus, plasmas with densities up to 100 billion electrons per cubic centimeter have been produced, and the electron energies recorded have been above 1 mev, indicating even higher electron temperatures than have been attained with the BPDA.

These were but two of the many advances reported in a day-long program for the Joint Services Technical Advisory Committee. Other reports this spring dealt with a new type of molecular clock for frequency standard studies, a method of reducing spoken communication to as few as four discrete signal levels without losing intelligibility after transmission, and studies of how people recognize letters and read words.

RLE receives broad substantial support from the Army-Navy-Air Force Joint Services Electronics Program, representatives of which review its program twice a year. This spring they included Lieutenant Colonel William C. Athas, Chief, Electronics Division, Air Force Office of Scientific Research; Arnold Shostak, Head, Electronics Branch, Physical Sciences Division, Office of Naval Research; and Harold A. Zahl, Director of Research, U. S. Army Electronic Research and Development Laboratories.



AT MILITARY DAY EXERCISES, May 12, on Briggs Field, Air Force Cadet Col. Edward L. Arnn, Jr., '64, escorted Dean John E. Burchard, '23, and President Julius

A. Stratton, '23, of the reviewing party. Many military dignitaries attended, including Lt. Col. Jay Zeamer, '40, for whom an Air Force Arnold Air Society squadron is named.

A Telescope for a Titan

SIX TEAMS of M.I.T. students designed a 1975-model earth satellite this spring as an exercise in integrated systems engineering. The National Aeronautics and Space Administration is now developing Orbiting Astrophysical Observatories called OAOs, and the students analyzed and designed the sub-systems for an advanced type called an AOA, which they expect another decade of technological progress to make feasible.

Current OAOs are designed for 36-inch telescopes with a second of arc stability and a life of one year. The AOA could carry a 100-inch telescope, stabilized to a hundredth of a second of arc, and last three years. A TITAN III could launch it into an orbit 500 miles high, inclined 32 degrees to the equator, and a nuclear reactor could supply it with power.

The telescope would be mounted in a hollow cylinder, nine feet across and 30 feet high, made from sheet beryllium to minimize thermal distortion. Three lobes around the barrel would give the six-ton AOA the appearance of a high-speed airplane with three severely swept delta wings equidistant around the fuselage. This arrangement was chosen, however, to minimize gravity disturbing torque.

Its telescope would be the Cassegrain reflecting type, but between its 100-inch primary and 20-inch secondary mirrors it would have an eight-inch indexing mirror to project the image sideways into a lobe containing a TV camera and instruments to analyze light from stars.

To move and point the satellite and telescopes, four gyrowheels, each 13 inches in diameter and weighing 65 pounds, would work together. Six star trackers would command different combinations of gyro torque, and three reaction wheels would stabilize the instrument with backup from magnetic coils around the outside of the vehicle to provide torque by reacting on the earth's magnetic field. Vernier jets would control initial tumbling.

Before and during launching, the nuclear reactor would be quiescent in a power supply lobe, but in orbit the reactor would be deployed outward with an 18-inch tungsten-and-lithium hydride radiation shield on a wire mesh, foam-filled boom. The reactor itself would be a sphere seven inches in diameter with a plutonium-carbide core and a uranium-carbide blanket. Tiny thermionic converters on its surface would produce 1,000 watts of electric power from its heat. Since conical covers over the converters would make the reactor look like a spiked medieval battle club, it was dubbed the MACE.

In the same lobe with the TV camera and other sensing instruments, there would be a computer, memory-storage reservoirs, digitalizing equipment, and both narrow-band and wide-band radio transmitters. High resolution television images could be handled by the latter.

A tenth scale model was built to ensure that all elements of the proposed spacecraft would fit together, and a 300-page report gave design details. Twenty-eight senior and graduate students of aeronautics and astronautics, civil engineering, electrical engineering, mechanical engineering, and nuclear engineering co-operated in the exercise, under the supervision of Professors Paul E. Sandorff, '39, as co-ordinator, William W. Seifert, '47, Henri Fenech, '57, Yao T. Li, '38, and Dwight M. B. Baumann, '57. Skills of the various groups were meshed to produce a preliminary design that the class believes



THIS AOA model (with one of three lobes on its central cylinder cutaway) was designed by an interdepartmental systems engineering class. From left are Ronald F. Rueckwald, '63, James L. Nash-Webber, G, and John E. Huguenin, '64, of the vehicle systems group, and kneeling at right is Don A. Coulter, G, who was project manager.

could become the basis of a real development program "if anyone wanted to do it."

Representatives of federal agencies and industry attended the students' oral presentation of their AOA ideas in May. The first such interdepartmental systems engineering class last year analyzed and designed an equatorial weather satellite so impressive that the U.S. Weather Bureau invited members of the group to give a briefing on it in Washington.

Quasi-Stellar Objects

A NEW PICTURE of quasi-stellar objects was presented this spring at the American Physical Society's meeting by Louis Gold, '47, and John W. Moffat of the Martin Company's Research Institute for Advanced Studies. These objects discovered by radio astronomers are estimated to be from two to 10 billion light-years away, and have been suspected of being colliding galaxies or chains of exploding stars. Instead, the Gold-Moffat hypothesis suggests, they are vast collections of hot, electrically charged gas or plasma with characteristics which produce "Debye energy" that accounts for the power of radio emissions from them. Dr. Gold was an M.I.T. Lincoln Laboratory consultant in 1959-1960.

The Edge of Science

Plasma physics has suddenly opened a new vista of knowledge, and inspired studies now reaching into all areas of human affairs

BY SANBORN C. BROWN, '44

IT is very seldom in the life of a scientist that a whole new vista of knowledge opens up, vast and challenging before him. But this has really occurred in what has come to be called plasma physics. In physics a plasma is defined as a neutral collection of electrons and positive ions (atoms which have been stripped of their electrons) which move around in random thermal motion. We have discovered that this is the most common form in which matter is found in the universe. If you go out into the far reaches of so-called empty space, or to the stars or the solar system, or almost anywhere in the galaxy except our peculiarly cold bit of dust which we call the Earth, you will find matter in this ionized state, the plasma state. Nearly all of the matter in the universe is in this state, and yet it is only within the last 10 years or so it has been recognized as a common state of matter. The whole subject of what we call plasma physics has excited a great fraction of the scientific community.

To bring order into a fairly chaotic collection of phenomena, I refer you to a plot in which the nature of matter is defined in terms of two variables: the density of electrons per cubic meter and the temperature at which these electrons are to be found. The diagram shows the various areas covered by plasma physics.

To start our discussion we begin in the lower left-hand corner of this diagram. If we get to very cold electrons and to very transparent matter,

we are in what is called interstellar space, including any nebulae we find in a study of the sky. It has not been very long since all our information about the interstellar space came from visual telescopes. Collections of charged particles such as electrons and hydrogen nuclei, which are dancing around in space, but which are still held together by their mutual gravitational attraction, are not necessarily visible optically but may be visible by radio telescopes. We call these collections "stars." Many of you are aware of the tremendous amount of work which is going on all over the world in studying the nature of the electrical signals which we get from these interstellar spaces.

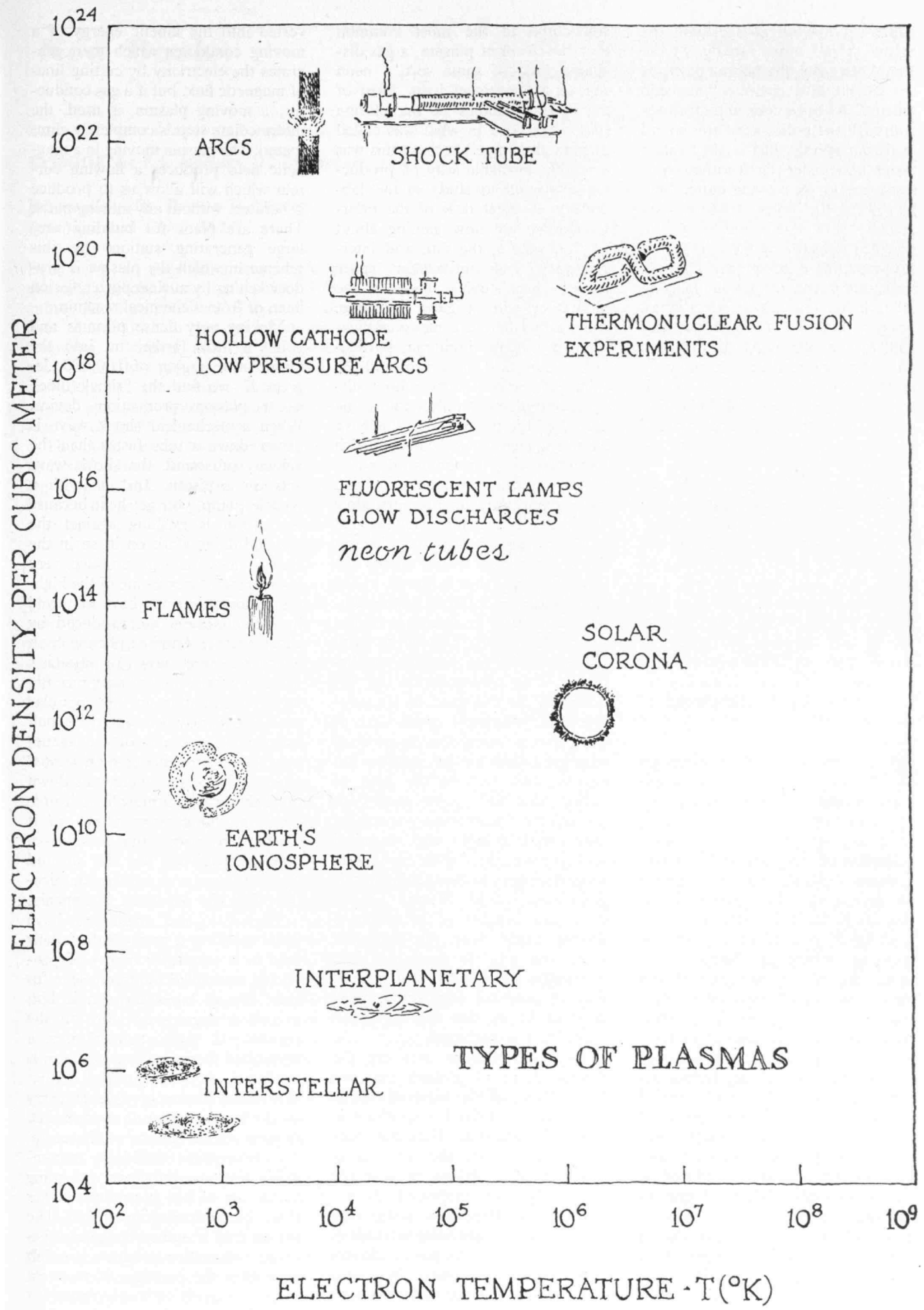
Interplanetary space, that is, space within our own solar system, which on the average happens to be kept warmer because we have the hot sun in our vicinity, reaches temperatures of around 10,000 degrees K. In interplanetary space the number of particles per cubic meter, except when we actually get to the surface of a planet, is fairly small, between a million or perhaps 10 million particles in each cubic meter. This is fairly transparent space. The interplanetary plasmas are of extreme importance to modern science because it is through this medium that we must travel if we are to go out any distance from the surface of the earth into interplanetary space, where we have already sent a fair number of probes. The physicists and engineers who are involved in space research are studying the mechanisms and the interactions of the plasma state in these interplanetary regions.

Perhaps the one astronomical area that has been studied the most is the Earth. Around it there is a charged blanket resulting from the fact that the atmosphere attached to the earth is being bombarded by solar radia-

tion and the solar radiation produces a plasma from the neutral gases which make the earth habitable. This layer is called the ionosphere and always insulates us from the outside space. This plasma blanket around the earth has been well known for a long time. It is relatively cold, 1,000-10,000 degrees K, and the electron density can get fairly high, up to about 10^{10} - 10^{11} electrons per cubic meter. There are some very interesting and important phenomena which occur as a result of this ionospheric blanket. Well known to radio engineers is the fact that you can bounce radio waves off the ionosphere. The interaction of electromagnetic radio waves with the ionosphere has been a major study for many years by both electrical engineers and physicists.

Recently the newspapers have been full of another phenomenon which was predicted theoretically long ago but actually found experimentally only a few years ago when we started sending up rockets and high-altitude balloons. This has been called the "Van Allen belts." These belts are areas of plasma concentration which have been caught in the inhomogeneous magnetic field around the earth. If you put a moving electron in a magnetic field, it has a tendency to go around in a circle, the diameter of which is inversely proportional to the magnetic field. If a charged particle is high above the earth somewhere near the equator, where the earth's magnetic field is not very strong, it goes around slowly in a big circle, but as it gets closer to the pole, where the strength of the magnetic field is greater, it must move in smaller and smaller circles. In shortening the radius of the circle, a radial force is applied, and in conserving its angular momentum the particle speeds up so that it not only moves in

PROFESSOR BROWN is associate dean of the Graduate School at M.I.T. This article was based on his remarks at the Alumni Symposium on "Engineering, Science, and Education for Tomorrow" which was held last April 18 in Newark, N.J.



tighter spirals but goes around the tighter spirals more rapidly. In the Van Allen belts, the plasma particles are caught in a gigantic "magnetic mirror." As these ions and electrons approach the poles, they are wound in tighter spirals, but as they rotate faster in smaller circles they conserve energy by moving more slowly toward the poles. In fact, they actually slow down and stop, and are then reflected by the mirror into reversing their directions. They go back and forth, caught in the Van Allen belts. The mirror effect is not perfect, and the charged particles leaking out the ends of the Van Allen belts cause the northern lights, or the aurora borealis. This electrical discharge is the visible indication of the ionosphere, or the charged plasma, escaping out the ends of the Van Allen belts.

Our very existence on earth depends upon our greatest plasma source, the sun. Its energy comes from the process we call thermonuclear fusion. Two heavy hydrogen nuclei are fused in such a way that helium is formed. There is energy left over which keeps the process going and incidentally keeps us warm. The whole process of the operation of the sun is a nuclear reaction occurring in the plasma of the sun itself.

THERE are some other things on the diagram that show how universal the plasma state is. Perhaps one of the earliest plasmas studied as an easy way of producing a neutral collection of electrons and ions was a flame. A flame even from a candle is not very hot, maybe 1,000 degrees K, but it is extremely dense because it occurs at atmospheric pressure. Chemical flames themselves are not usually studied, but many varieties of chemical or electric "torches" produce plasmas which are not only laboratory tools for increasing our understanding of the plasma state but are technically important tools for such varied operations as welding or chemical synthesis. Also, for example, meteors burn up when they come into the atmosphere and are reduced to the plasma state. Much of our information about meteoric physics and chemistry comes from studies of the behavior of the plasma state.

If you go to a plasma a little hotter than a flame, and a little denser,

you come to the most common everyday form of plasma, a gas discharge tube of some sort, a neon sign or a fluorescent light. Most of the original studies of the plasma state were done in what was called a "glow discharge" because this was a readily available way of producing a plasma to study in the laboratory. A great deal of the information we are now gaining about the ionosphere, the sun, and interplanetary and interstellar space comes from studies made in the laboratory with a glow discharge. Practically, there are many applications of a glow discharge, particularly in the field of control and gas tubes of various sorts. Glow discharge studies not only explore the theory of the plasma state but have led to engineering applications which have been very numerous indeed.

If we continue to pour more and more energy into an ordinary glow discharge, it turns into what we call an "arc." In an arc, the electron density can rise to 10^8 times the charge density that is found in the sun at perhaps 1,000th of the temperature. These kinds of arc studies in the laboratory provide us with powerful tools for studying the behavior of the plasma of the sun. Incidentally, at this kind of temperature and pressure a great deal of work is now being done to produce what are called "ion jet" engines. Ion engines may well be the kind of engine that will move spaceships through the interplanetary space for long sustained flight after chemical rockets have achieved the high initial force necessary to escape the earth's gravitational field. Plasma jet engines are capable of providing a driving force over the thousand years you need to reach out into interstellar space. Obviously a great deal of practical engineering must be done before this method of ion propulsion is perfected.

The high-pressure arcs are the densest form of plasma that we know. Here, all the material that is in the arc is ionized; everything is in the charged state. Here the theoretical studies are the most characteristic of a plasma because the plasma is pure, undiluted by un-ionized gas. Here also some very practical devices are being worked on, particularly the "magnetohydrodynamic energy converter." In a conventional turbine, gas energy is con-

verted into the kinetic energy of a moving conductor which then generates the electricity by cutting lines of magnetic flux, but if a gas conductor, a moving plasma, is used, the intermediate step is completely eliminated. The plasma moving in a magnetic field produces a flowing current which will allow us to produce generators without any moving parts. There are plans for building very large generating stations by this scheme in which the plasma is produced either by nuclear power, fission heat, or from a chemical reaction.

Making very dense plasmas and going a little farther up into the temperature region of 100,000 degrees K, we find the "shock tube" as a plasma production device. When a mechanical shock wave is driven down a tube faster than the velocity of sound, the shock wave acts as a piston. Just as with a bicycle pump, you get heat because the piston is pushing against the gas and doing work on it, so in the shock tube you can produce very high temperatures. Some of the highest temperatures we have achieved in the laboratory are produced by shock waves. Another phenomenon which has been known to physicists for a long time, but has only recently received attention in the popular press, appears when we try to pull astronauts back out of interplanetary space through our own atmosphere. When a capsule comes down through our own atmosphere, it produces a shock wave ahead of it which is so strong that it builds a plasma sheath all the way around the astronaut, and our communication with the astronaut disappears.

Physicists and engineers have been spending a great deal of their time in a search for a way of producing controlled thermonuclear fusion. We all know the sun is hot, a million degrees or more on the corona. At those temperatures a controlled thermonuclear reaction is produced, as we mentioned before. We would like to be able to carry on the same reaction in a controlled fashion on the surface of the earth. The advantages would be tremendous. For one thing we are going to run out of fuel to produce power if we keep on using fossil fuel. The fission fuel is rather dangerous because radioactive products are left over after the reaction. If we went

(Continued on page 47)

New Books

EPISODE, by Eric Hodgins, '22 (*Atheneum*, \$5).

Reviewed by Dr. Benson R. Snyder,
Psychiatrist in Chief, M.I.T.

EPISODE is an engrossing and impressive account of one man's cerebro-vascular accident. Eric Hodgins, '22, author and former editor of *Fortune*, describes how it feels to live through the sudden shock of helplessness following a "stroke" and the subsequent long journey back to an altered sense of independence. His acute observations on the external scene (hospitals, doctors, nurses, etc.) are developed together with his sensitive reading of more personal perceptions of these events.

The book weaves two themes together with uncommon skill. One is focused on an outer reality of crashing bedpans and insensitive professionals. The other is focused on an inner climate of despair. The despair is reaction to an arm that no longer responds to the mind's intent, to the loss of freedom that follows illness, to the self-reassessments that precede death. This makes the narrative far more than a clinical account of an illness. The author combines involvement with irony and humorous objectivity, giving the reader a sense of compassionate participation. This is an exciting story exceedingly well told by a man who is honest with himself and honest in his reporting of what he sees about him.

Mr. Hodgins indicts hospitals as they stand today. His bill of particulars is long and well documented. With wit applied to convincing evidence he discusses the noise level in hospitals, the routinized relationships that characterize the attendants, the nurses, the physicians. He documents the lack of information which a patient has about his own progress or about the procedures that are performed on him. He speaks of the pride that becomes a barrier to asking for help and to receiving it, a factor which he acknowledges complicates the hospital's task. "Why I went through all but what is left of my adult life, confusing pride with self-respect, I don't know, but I did. If I still do, it is now to a lesser extent. What was the meaning of my belief that it was up to me always to be self-sufficient—a bluff—in which there is ample evidence I am far from unique?" The modern hospital frequently disregards this personal dilemma of its patients.

The evidence which he marshals leads to a number of provocative conclusions about the impact of hospitalization on the ill. For example, one is struck with the impossibility of a patient's altering or affecting even a small part of his daily routine in a hospital. There are no areas of choice left open to him. Freedom to decide one's breakfast menu or one's fate is clearly lost. Hodgins makes a strong case for allowing the patient some small area where he can affect his environment. Some honest confrontation with his keepers can be crucial to keeping the patient from an apathetic resignation. This message alone is sufficient to make the book

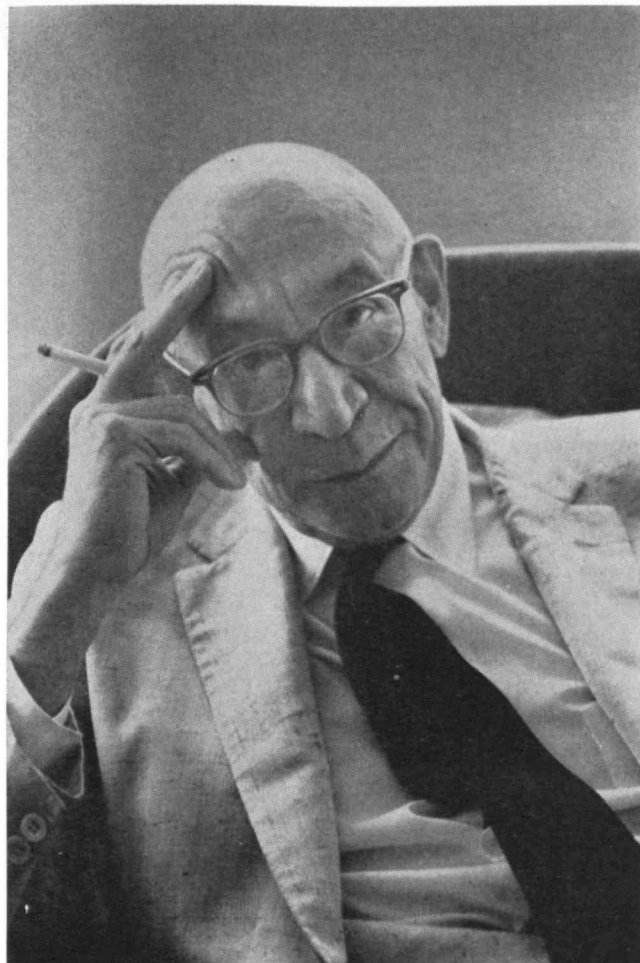


Photo by Lida Moser—Atheneum

Eric Hodgins, '22, "took his journey without benefit of a map but kept careful note of what he saw."

recommended reading for those who have responsibility for caring for the ill.

The book does more than this. It is an effort to explain a complicated disease to patients with that disease or the relatives of those patients. There are lucid descriptions of the neurophysiological changes, neuropathological changes, which underlie the symptoms and disabilities that attend the "stroke." The rationale or lack thereof of the various therapeutic measures and rehabilitative procedures are carefully discussed. Hodgins took his journey without the benefit of a map but kept careful note of what he saw and what he learned.

From this collected data he has written a guide that should be of inestimable value to all of us who eventually follow on such a journey. He deals with more than the specific disabilities of a "stroke." He has written about an episode in the process of aging.

Among Bookmen

CARROLL BOWEN, Director of The M.I.T. Press, was a juror for the 1964 New England Book Show. . . . "The New World of Negro Americans," by *Harold R. Isaacs* of the M.I.T. Center for International Studies, was among the winners of Saturday Review-Anisfield-Wolf Awards. . . . Professor *Lucian W. Pye* will be one of the general editors of a series of paperback texts in comparative politics for Little Brown & Co.

Classmates From Other Countries

Internationalized education poses problems for both the individuals and American universities

BY FORREST MOORE

FOREIGN ALUMNI are now being generated by American colleges and universities at the rate of about 15,000 annually. The present enrollment of foreign students is five times the pre-World War II figure; and the national trend points to 125,000 or more in our institutions of higher education by 1970.

Of the 64,000 foreign students from 153 countries who were in the United States in 1962-1963, about 20,000 were just beginning their studies in this country. They included 6,000 to 7,000 who were supported by the United States government. (The great majority of beginning undergraduates, about three-fifths, are self-supporting. Graduate students, on the other hand, are increasingly financed by the U.S. or foreign governments, and more and more of the graduate group are able to get teaching and research assistantships after their initial year here.)

In 1962-1963, foreign students were distributed in almost equal numbers between graduate fields of study (45 per cent) and undergraduate or special fields of study (55 per cent). One in every six was a woman. About 10,000 students each were from Latin America, Europe, and the Near and Middle East; students from Asia (28,564) numbered as many as these three areas combined. The 5,000 African students in the United States last year represented an increase of 27 per cent over the number here in 1961-1962.

With respect to fields of study, engineering attracted the largest number, 14,257, or 22 per cent of the total. The humanities were second in popularity, followed by the natural and physical sciences. Education and agriculture drew fewer students than any other of the broad general fields.

Although foreign students were scattered over all 50 of our states and were enrolled in 1,805 colleges and universities, 32 large private and public universities enrolled 40 per cent of the total group.

Despite this sizable number of foreign students in the United States, their proportion to our total student enrollment remains small—in 1963, only 1.6 per cent. In Western Europe, the percentage of foreign students in universities is already 20 per cent and is still climbing. True, some of our universities are moving toward this

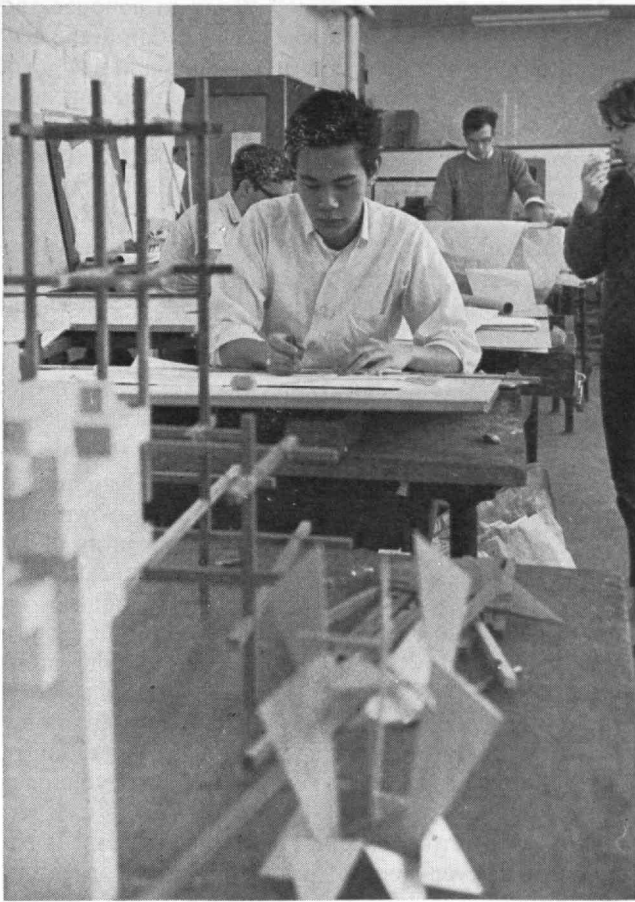
figure; in 1963, 17 per cent of Howard University's students, 13 per cent of M.I.T.'s and 9 per cent of Harvard's were foreign.

It should be noted, in passing, that the traffic in students moves not only one way. Last year, American students—some 16,000 in all—were scattered through 411 institutions in 60 countries. The lion's share, 62 per cent, went to Europe, mainly to France, the United Kingdom, and Germany. Almost half were studying in the humanities; few Americans go abroad for scientific training.

WHAT are the goals and purposes of the educational interchange? This depends on whether one takes the viewpoint of the government, of the educational institution, or of the individual. The U.S. government, in its promotion of interchange programs, stresses the importance of strengthening bonds of international understanding. The foreign country is looking for means to educate, since it needs an almost unlimited number of trained men and has limited or inadequate educational facilities. The educational institution is looking for high-quality students, whether they come from Minnesota or Mozambique, and expects its training of scholars will serve the general welfare of people both at home and in other countries. The student's goals may be national; normally he is committed to building up or improving his own country. But they may also be personal—to make a living, to escape from a difficult situation in his own country, or simply to learn more than he already knows. These goals are, of course, not mutually exclusive; the individual and the institution may share some of them and often do. But, shared or not, they must all be taken into account in deciding who should be educated and for what purpose.

There is always a question of whether or not this flow of ideas between either countries or individuals increases understanding between them, and whether or not this, in turn results in liking for one another. But it is also relevant to ask whether mutuality of emotional feeling matters. A foreigner's understanding of us should lead him to a proper assessment of our goals, our motives, and our likely behavior; this in turn should lead him to deal realistically with us. At this point in history, perhaps we should be less concerned about whether we are liked and more concerned that people of other countries understand what we mean, so that we minimize the risk that they will incorrectly estimate our intentions. While we would like to be understood, even to be loved, we should perhaps be satisfied to be realistically appraised.

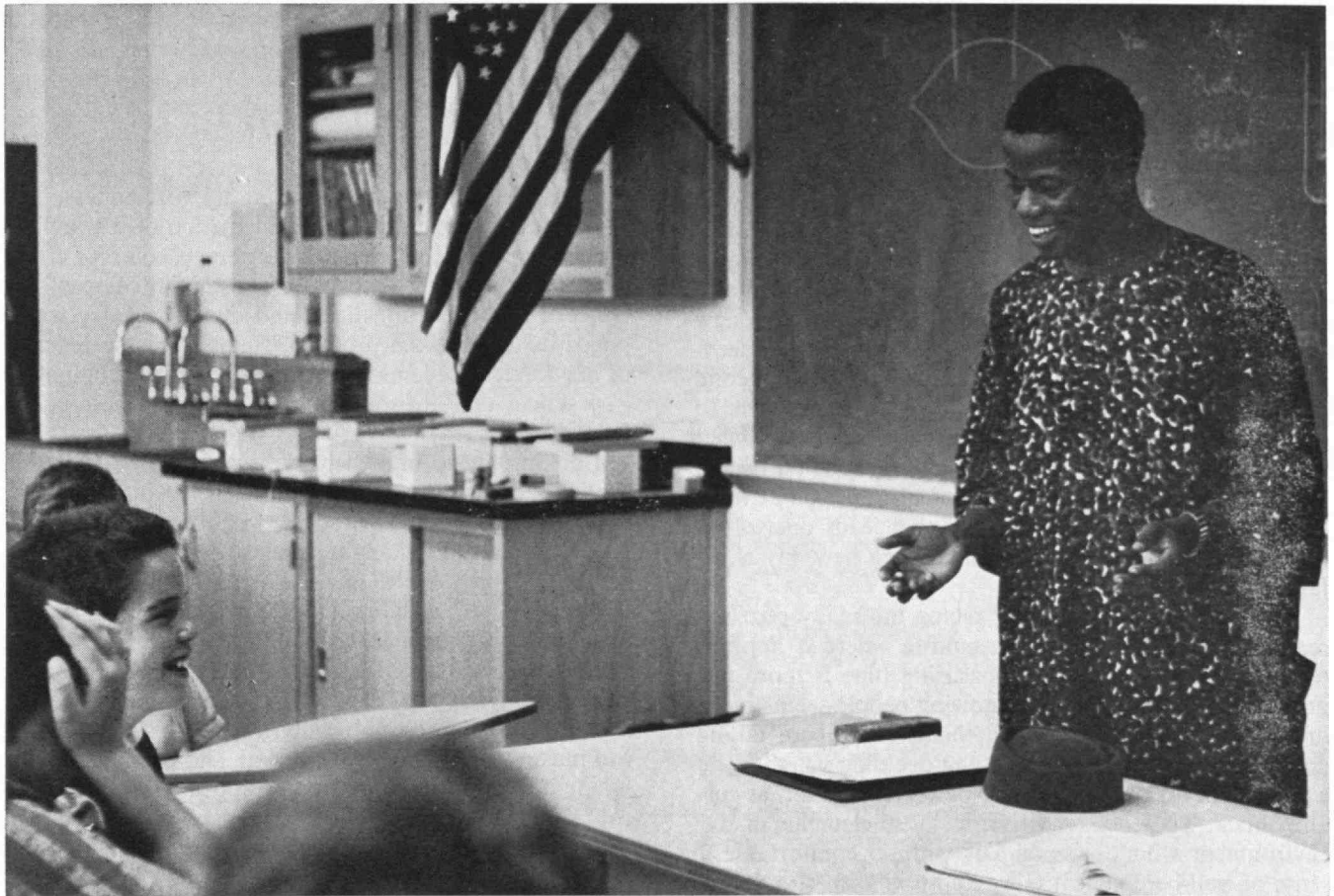
THE AUTHOR directs an office advising 1,200 foreign students at the University of Minnesota and is a past president of the National Association of Foreign Student Advisers. This article, copyrighted, 1964, by Editorial Projects for Education, Inc., will appear in alumni magazines throughout the country.



Arthur Kwok, '66, of Hong Kong, is studying architecture.



Ziad M. Elias, '63, of Syria, is studying photogrammetry.



Fermi Oyewole, a visiting teacher from Africa, talking to a science class of seventh graders in the Newton, Mass., schools.

For the individual, there may be real questions about the results of the cross-cultural experience. It may make him dissatisfied with being a citizen of one country, and disposed to becoming a citizen of the world. A world-citizen has been described as being: (1) a professional whose ideas encompass more than a single system of education or a single professional field; (2) a bilingual person whose native language depends on where he is located and to whom he speaks; (3) a citizen of the world affected only by decisions that have to do with internationality; and (4) a person whose human relationships are limited only by the extent of the family of man.

When students from differing cultures come to a new land, obviously there are problems involved for both the individual who comes and the family he often leaves behind; for both the personnel that staff the university he joins and the community in which he is located.

We now have rather good evidence that what happens is sometimes shocking, that while the path to a successful educational experience in the United States looks and sounds deceptively easy, for many foreign students it is surprisingly difficult. Some would have us believe that the entire interchange effort should be abandoned, that as high as 50 per cent of foreign students return home disliking America and its inhabitants. Yet the failure rate of foreign students as gauged by academic criteria is low, 10 to 15 per cent at most, and on the really important questions—Are you satisfied with your training here? Do you feel your training will lead to a better job? Were you accorded fair treatment in the college you attended and in the community where you lived?—all measurements we have yet devised show a high level of satisfaction among 70 to 80 per cent of those queried.

When we consider that undergraduate degrees require four to five years and graduate degrees at least as long, the miracle is that so many foreign students carry through with their plans, and that, once having arrived here, they have the fortitude to complete the degree. Often they are lonely, no matter how friendly the surroundings. Often they are discouraged, as is every student who faces hard-working and brilliant competitors. And often they are anxious and ill at ease, no matter how long or intense their U.S. experience. Add the difficulties that a strange language brings and the idiosyncracies of a new educational system, and you marvel at these modern-day explorers. It is one thing to read and speak a second language for everyday usage; it is quite another task to compete for marks with native-born Americans schooled in use of the language since infancy, untroubled by the need to translate and then retranslate the unfamiliar word or phrase—and all this at a pace that leads one to believe that the instructor must think each new day is his last.

Then there is the shock of facing the really puzzling realities of another culture, a culture where it appears to the foreign student that measuring time is more important than using it, where knowing people seems more important than understanding them, and where taking action seems more important than deciding whether the action is appropriate. Anthropologists refer to this as culture shock. The cues to behavior, those elements of the environment which surround us with so comfortable a sense of well-being because we know what we are doing, are suddenly replaced by nagging doubts that no one can understand unless he has himself experienced them.

Just as the foreign student is about to conquer and control these symptoms of his mind's reaction to the new and unfamiliar, he faces them all over again in new form as he prepares to return home. Now he finds that he is overtrained, that in his own country there is neither the equipment to do the job nor the need to have the job done with such careful precision at such heavy expense. He learns that the problems of the host country were not really the same as those of his own and that it is necessary to make major concessions in adapting his plans for revolutionizing an industry or changing a teaching method.

FOR the educational institution the acceptance of the foreign student poses other problems. Shall the overseas student be given special attention? How do we balance our allocation of resources as we attempt to serve students from our own country and our own area and at the same time respond to the importunity of individuals and agencies who want our aid in educating the world? Do we accept students from other countries on the basis of an agreed-upon-plan—for example, from a single area of the world in order to increase our proficiency? Do we give attention to training foreign students in selected fields only? In the United States, the autonomy of educational institutions requires that co-operation in this kind of management be attained only by voluntary agreements.

As a resource for teaching, the foreign student is being used in an ever-increasing circle of planned programs. These programs involve high-ability high school students interested in the social sciences and provide realism for their classroom and extracurricular experience. When an African student from Northern Rhodesia or Uganda talks about the political future of his country, it is likely to have more impact than when an American does it.

At the level of human relationships and social action, some persons have found it possible—often for the first time—to accept as inconsequential the differences between individuals as accentuated by foreignness, and eventually to move toward an affirmation of the importance of our likenesses irrespective of race, color, or creed. There seems little doubt that a substantial share of our concern for racial injustices, and of the urgency which goads us to solve the problem, stems from the reaction of our foreign students to our practices of discrimination—practices that are sometimes imposed on these guests from overseas.

Looking ahead into the 1970's one can be sure that the interchange of students will bring its share of innovations and surprises. Graduates of universities are already involved in changing their viewpoint from a local and regional one to one that is national and international in scope. In the realm of curriculum changes, for example, the University of California is now operating four overseas centers where its students may, under the guidance of selected faculty members from California and the co-operating university, receive instruction that will make them bilingual, bicultural, and probably multinational. (*Multi-national*, since it appears that the cross-cultural experience, when successfully undertaken, stresses elements of commonality to the extent that the knowledge gained has transfer value when the recipient moves to a new and different culture.)

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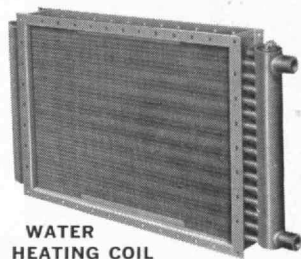


B. E. JAMES '32, President
JOHN A. MOGA, JR. '57

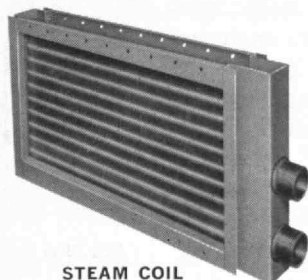
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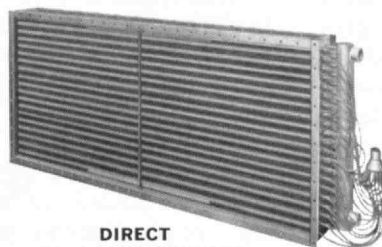
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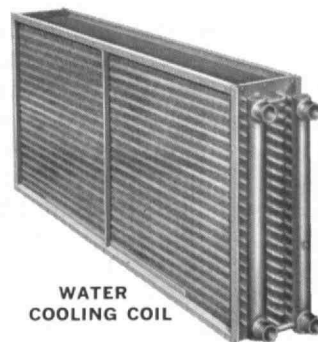
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Music at M.I.T.

Some remarks about its importance, and the zest for it, made at a pre-symphony luncheon of the Boston Symphony Orchestra

BY KLAUS LIEPMANN

Director and Professor of Music

FOR a musician, it is natural to be aware of the importance of music in our lives. However it was the greatest surprise and delight to me, when I first came to M.I.T., to hear our Administration—the Presidents as well as our Dean of Humanities, John Burchard, '23,—express thoughts which I had cherished all my life. Very much simplified and summarized, they are:

First, just because there is less time at M.I.T. for the pursuit of the humanities than there is in liberal arts colleges, we must make this time count.

Second, we therefore must engage experts in music, not an English professor who dabbles on the side in Gilbert and Sullivan.

Third, extracurricular activities in music should become educationally worth while—that is, guided by professional musicians just as we employ athletic coaches.

Fourth, if we believe that art and music are basic to our lives, we must practice what we preach, and make our institution a center of art, music, and the theater, as well as one for science and engineering.

Thus we have done away with the division of theoretical and applied music with the distinction between curricular and extracurricular music. Our students sing and play music under expert guidance; and while we have concerts by the Glee Club, Choral Society, Concert Band, and Symphony Orchestra, our emphasis is on rehearsals, not on concerts. We consider our making of music as laboratory sessions which supplement our theoretical music courses.

Every one of our music faculty is, in addition to this theoretical training, a practical musician. I can only name my colleagues without detailing their various and important contributions to our music program. How-

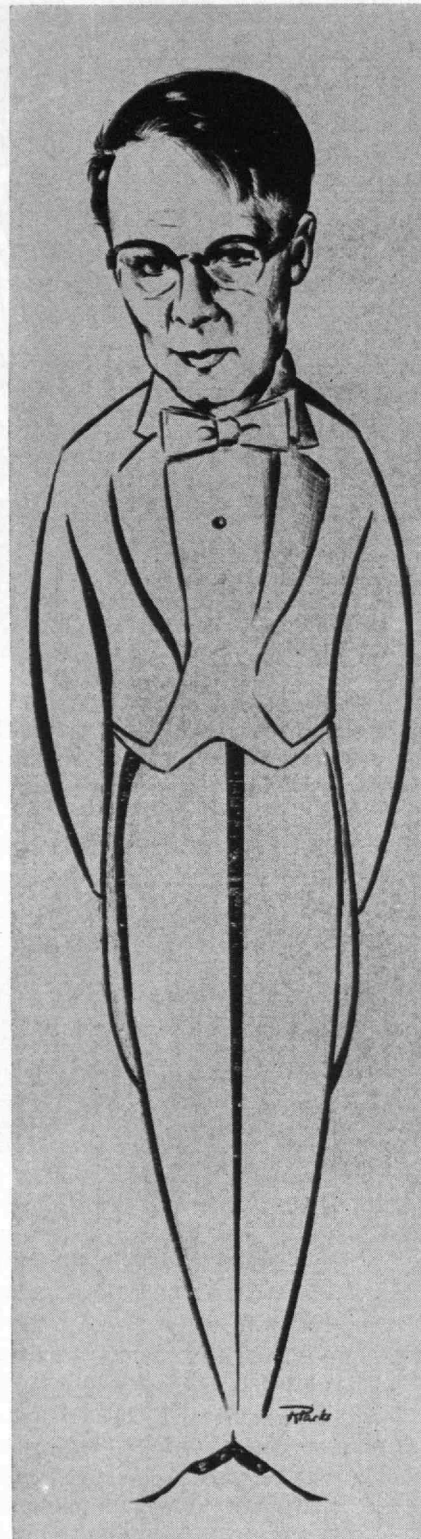
ever, you will realize that a program as ambitious as ours relies heavily on the dedication and imagination of its staff. We are fortunate to have interested and engaged for many years people like Gregory Tucker, John Corley, and Victor Mattfeld. . . .

There is reason for rejoicing when we observe our young people as they make music. Here we find dedication, perseverance, pioneer spirit—qualities which an older generation frequently misses in “this modern age.” They sing and play music not for money, not for the sake of personal advancement, and not for applause.

This fascination with music, particularly among our future engineers and scientists, reminds one of the age-old affinity between mathematics and music, and of the myth of the “music of the spheres.” Perhaps it is the combination of rational and irrational forces, of emotion and logic, of physical and spiritual values which attracts our M.I.T. students (and Faculty) to music.

Not satisfied with the passive role of the mere listener, our young amateur musicians use the do-it-yourself method. And indeed, there is no more direct way to music than to make it. The amateur who has labored for weeks over his part in a Beethoven symphony, for example, will truly acquire an intimate glimpse into the very core of the music and will more fully appreciate a professional performance ever after.

Yet, we must guard to instill in our young people a respect for the humility and dedication of the professional artist. If our amateurs believe that they are just as good as Heifetz or the B.S.O., we have failed. Our task lies in the opposite direction: to educate future audiences—men and women who realize how difficult it is to shape a musical phrase, or to do justice to the many



A caricature of Professor Liepmann drawn by Ray Parks.

different musical styles. We hope that future generations of Americans will better value their national resources—not only the forests and waters, but also the people—the many highly gifted opera singers who now have to acquire their experience in Europe. The many highly gifted young American pianists some day might be famous *before* Russians acclaim them.



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A Rich Commencement Ritual

(Concluded from page 18)

are being asked to justify their work on an increasingly pragmatic basis." The federal government will continue to dominate research in the immediate future, he said, but nobody wants it to fall into the WPA category, and there may be a gradual shift toward more industrial participation.

"How could this come about?" Dr. McMahon asked. "I can see at least three important changes which could have a favorable influence:

"First, the granting of tax incentives and the enactment of other legislation designed to stimulate a more aggressive research attitude in industry.

"Second, a strong affirmative posture on the part of industry which would re-assert its right to control its own destiny and face up to its responsibility to develop an enlightened policy of research and development including a well-balanced recognition of the values of both applied and basic research.

"And finally, a growing cultural-economic maturity on the part of researchers, recognizing the fact that it is no longer necessary to use the 'ivory tower' as a retreat from the reality of the world of community, government, and business."

"There are encouraging signs that all three of these trends are present."

Government and Education

Mr. Winters, who was a member of the Canadian government for more than 12 years, emphasized that new ideas are needed in public affairs as well as private industry, and urged the graduates to carry the crusading ideas of the campus into government at all levels.

"Engineers and scientists in the past," he lamented, "have allowed themselves to be stylized, classified, and assigned to ruts in their own minds, as well as in the minds of the public, to the point where they have been too reluctant to accept responsibilities in the broader fields of corporation administration, humanitarianism, and government."

Mr. Winters recalled the services of the Right Honor-



ELEVEN graduates received commissions in the U.S. Army Reserve, seven in the Naval Reserve, two in the Marine Corps, and two in the Air Force on June 11 in Kresge Auditorium. Twelve more will be commissioned this fall.

able Clarence D. Howe, '07, as a Cabinet Minister, and said that it was Mr. Howe who convinced him that more engineers were needed in public posts. "Politics for all its connotations is in fact the art of government and there is no more honorable profession," he said. "More qualified people are needed in the governments of all our democratic countries."

Dean Wiesner, who was President John F. Kennedy's Special Assistant for Science and Technology, spoke finally of the opportunities in education. Men often drift into teaching, he said, but find there a wide spectrum of opportunities, in research and service to industry and government, as well as in helping to meet society's increasing need for well-educated citizens.

Participants in Pageantry

As the M.I.T. Alumni Association's President this academic year, Mr. Winters carried the mace in the procession on commencement day. Near him were the Governor of Massachusetts, Endicott Peabody, and the Honorary Chairman of the M.I.T. Corporation, Vannevar Bush, '16. In the line of march, too, were members of the Corporation, led by John J. Wilson, '29; members of the Class of 1914, led by Professor Leicester F. Hamilton, '14; and members of the Faculty, led by Professor Herbert H. Woodson, '51.

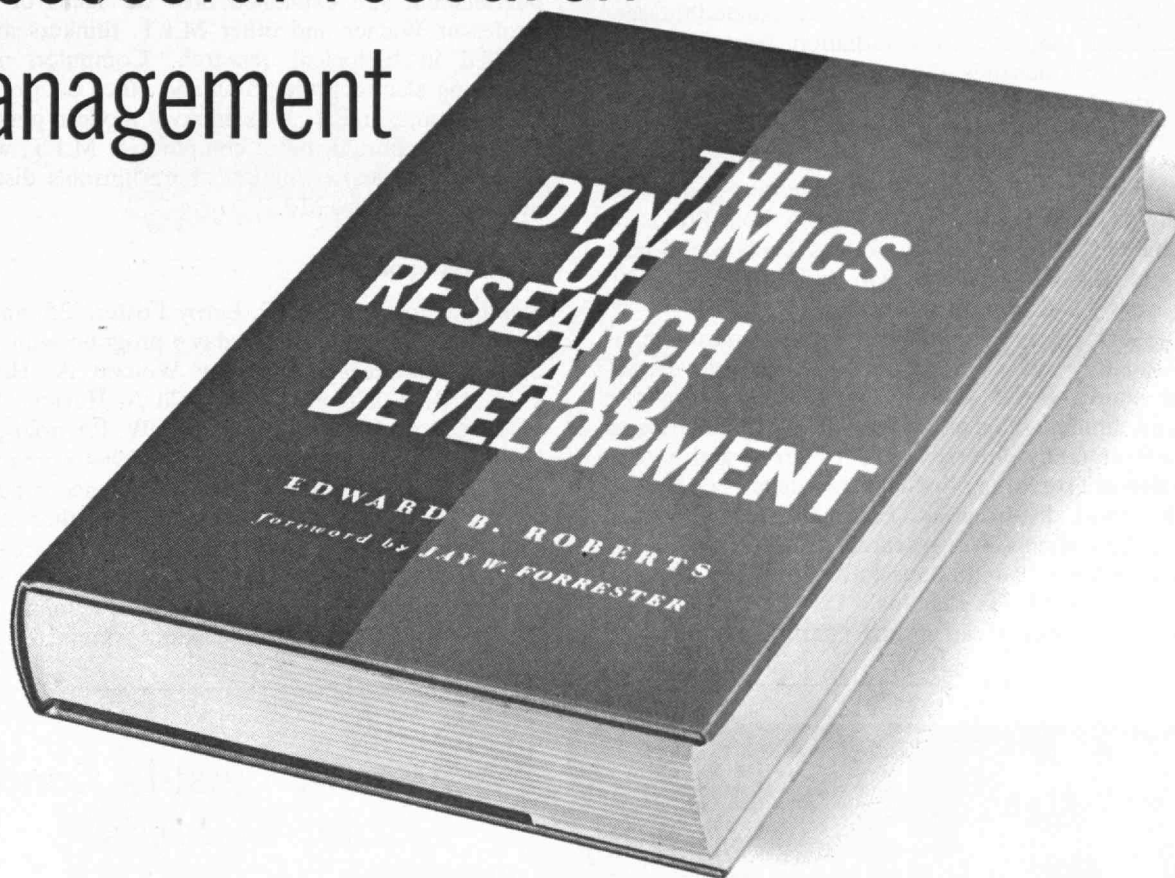
An honor division with Vice-president Malcolm G. Kispert, '44, as its marshal included the deans of the Institute's five schools and retiring members of the Faculty. Dean Kenneth R. Wadleigh, '43, and Professor Ross H. Smith were Faculty marshals for the graduates, and William H. Carlisle, Jr., '28, was marshal of the audience. Investors of the Hood were Dean Harold L. Hazen, '24, of the Graduate School, and Professor Harold S. Mickley, '46, chairman of the Faculty.

The Reverend Virgil E. Murdock, Unitarian chaplain gave the invocation, music was provided by the brass choir conducted by John D. Corley, Jr., and Dr. Killian presided as he has now for the last six years.



Commencement and Alumni Day visitors passed the new Student Center scaffolding as they entered Rockwell Cage.

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*Associate Director,
Organization Research Program,
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Alumni See Medical Research

(Concluded from page 23)

placed in it can receive customary nursing care.

These reports were followed in the afternoon by a panel discussion of "Servomechanisms in Living Systems." Dean Harrison began this program by describing various kinds of feedback loops, and to emphasize mankind's dependence on such systems he explained the servomechanism that stabilizes radiation from the sun. There are also thousands of servomechanisms in the human body, Dean Harrison continued, and Professor Nevin S. Scrimshaw pointed out later that evolution is largely a story of the increasing complexity of these biological servomechanisms. How fascinating and puzzling many of them are was made clear by both Professor Scrimshaw and Professor Hans-Lukas Teuber, and how living and man-made systems can be linked electrically was shown by Dr. Lawrence Stark.

Professor Scrimshaw, who heads the Department of Nutrition and Food Science, pointed out that the capacities of many of the storage mechanisms within our bodies are limited. This affects our ability to endure and recover from many different kinds of stress, and he and others now are studying physical consequences of anxiety and emotional disturbances. Especially meaningful to many in the audience was research he cited that has revealed how final examinations have upset the nitrogen balance in some M.I.T. students.

Professor Teuber, Head of the Department of Psychol-

ogy, dealt with lobes at the back and front of the brain which are involved in perception and co-ordination, and described studies of both men and kittens that are adding to understanding of how we see the world the way we do and remain oriented in it.


Dr. Stark, a research associate in Biology, spoke of the need for a more quantitative approach to neurological phenomena, and explained how the ideas of the late Professor Wiener and other M.I.T. thinkers are being applied in biological research. Computers now are analyzing electrocardiograms and other data of interest to physicians, and as an example of modern possibilities, Dr. Stark reported that a computer at M.I.T. was used recently in the examination of Parkinson's disease patients in Bethesda, Md.

Those Responsible

Committees headed by F. Leroy Foster, '25, and Ralph H. Davis, '31, planned the day's program with the help of subcommittees chaired by Wolcott A. Hokanson, Everett R. Ackerson, '41, Donald A. Hurter, '46, John H. MacLeod, Jr., '41, and Robert W. Reynolds, '30.

Members of classes from 1904 to 1964 were registered for the day's events and many were accompanied by families and friends. Classmates sat together at the annual banquet in Rockwell Cage and seats were reserved in Kresge Auditorium for the older classes at the concert which followed. Twelve classes held reunions in New England on the weekend preceding Alumni Day.

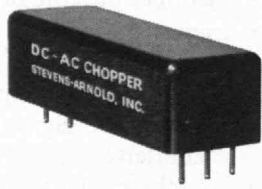
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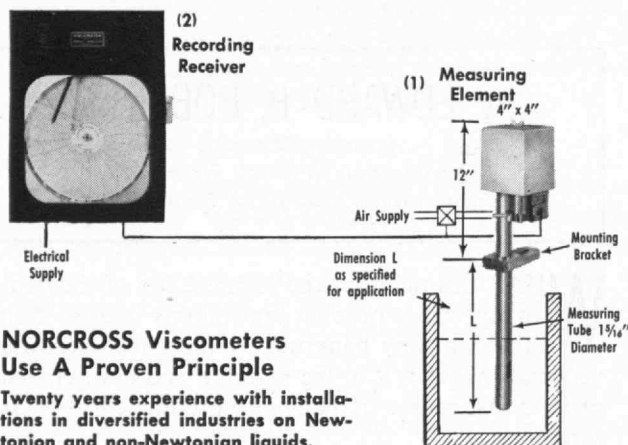
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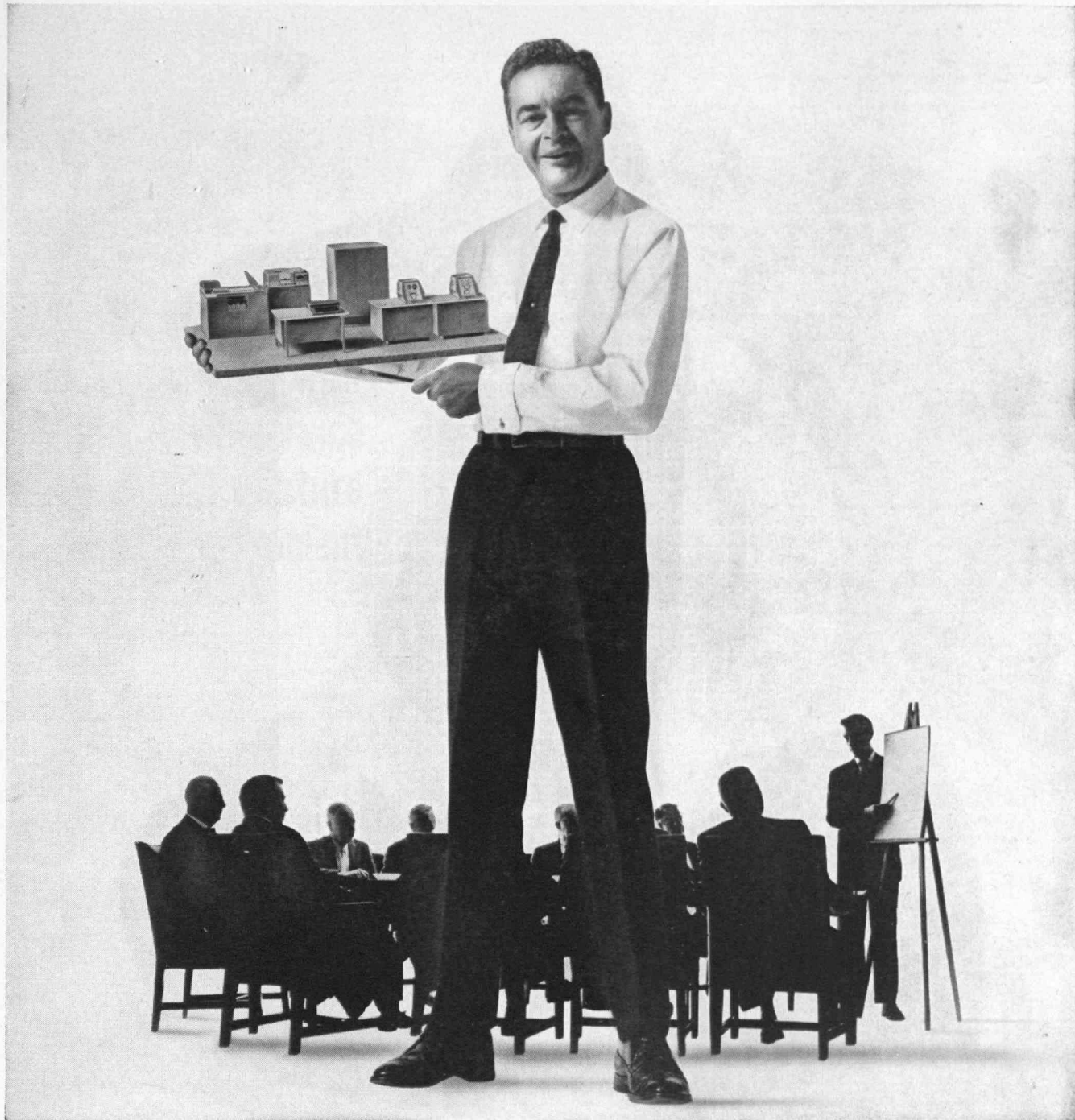
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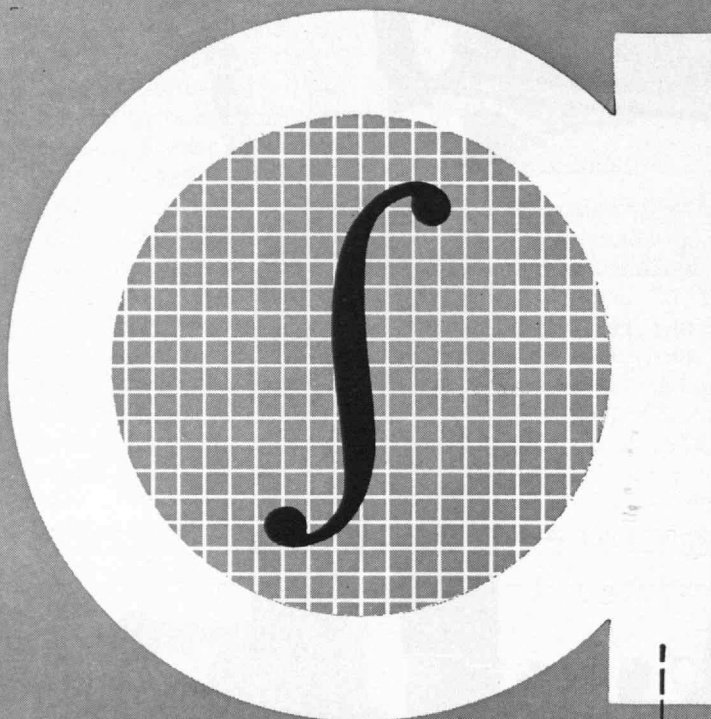
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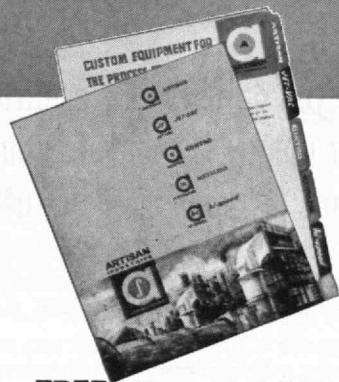
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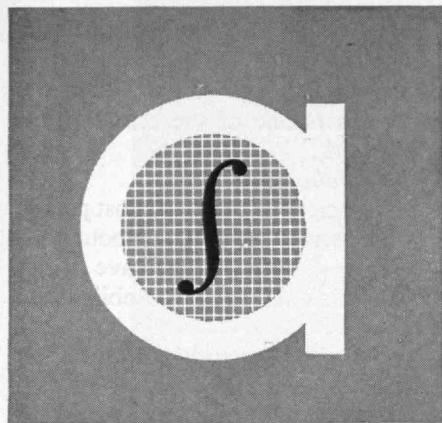
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The Edge of Science

(Continued from page 34)

completely to fission power, we would eventually have difficulty in disposing safely of all the radioactive waste. The thermonuclear reaction has no radioactive waste. It ends up as ordinary helium. Furthermore, its fuel is a plentiful isotope of hydrogen, found in all water. Wherever human beings are, there is water, and you can burn this water to produce thermonuclear reactions. We know that a thermonuclear reaction works because the hydrogen bomb is exactly this: by exploding a fission bomb in contact with the hydrogen isotopes, you heat them so hot that the fusion reaction takes place. We would like to be able to do this in a controlled way in the laboratory; we have not yet succeeded.

IT SHOULD be quite clear from this description of the plasma state that its science and technology do not fall within any one of the usual established disciplines. As we all know, M.I.T. is a place where particular disciplines do not have any very rigid boundaries. The field of plasma physics capitalizes upon the philosophy of teaching at M.I.T.

At the moment there are over 30 members of the Faculty working on some phase of the plasma program. There are about 100 graduate students doing research and about 30 undergraduates absorbed into the laboratory in various ways. It is difficult to know how many courses are being taught at the graduate level because many of the courses are not of a very formal nature. However, listed in the catalog are more than 20 different courses in the plasma field, taught in many departments in both Science and Engineering. For example, in Mechanical Engineering there are courses having to do with the magnetohydrodynamic fluid flow, magnetohydrodynamic machines, shock waves, and direct energy conversion. You would expect the Electrical Engineering Department to cover a great many of these areas and they do. There is a magneto-fluid dynamics course; there are some energy conversion courses; there are microwave interaction courses that deal with radio astronomy and the structure and behavior of the ionosphere. In the Physics Department we teach courses in the electrical properties

of electrons and ions and the effects of magnetic fields on plasmas. We also teach courses in the nonlinear phenomena in fluids and plasma and wave propagation in this new kind of medium. There is a very strong group in cosmic physics. They specialize in satellites and in making tests of the plasma nature of space in the interplanetary system, as well as in problems of radio astronomy. As you would expect, the Department of Aeronautics and Astronautics has research teams working in various areas of this plasma group. They are interested in problems of astronaut propulsion and in high-speed flow, since many of the very high-speed phenomena occurring in plasmas are of great interest if you want to get somewhere in the universe away from the earth. The Mathematics Department has a course in mathematical theory of magneto-fluid mechanics, and our mathematicians are developing the basic mathematical tools for understanding many of the plasma phenomena on earth and in the astronomical regions of space. Finally the Nuclear Engineering Department has four courses which have to do with the thermonuclear processes which we hope will lead to a controlled thermonuclear fusion reactor. This is still in the future, but we are learning a great deal about this reaction as a potential source of power.

To me as a teacher, one of the interesting things about suddenly opening up a new field is its effect on our teaching policies. What kind of physics do we teach our undergraduates to give them basic information for more advanced work in this field? For generations we have been dropping out things like fluid flow, but this is precisely what you need for an understanding of the fundamentals of plasma physics. As the research areas change, the change must be reflected in the more elementary educational processes.

To make progress in this direction we convened at M.I.T. a group of physicists and engineers who were basically interested in trying to teach plasma physics at an elementary level. There were some M.I.T. professors, professors from Pittsburgh, from Princeton, from Caltech, from Swarthmore, from the University of California at Berkeley, from Stanford, and some industrial physicists from Bell Labs, from Avco, and from government laboratories like those

(Concluded on page 48)

The Edge of Science

(Concluded from page 47)

at Los Alamos and Livermore. We worked together for a week, devising what we thought was a reasonably good course. We published it in outline form. Many of us in various places in the country are trying now to teach this undergraduate course in plasma physics, including the areas having to do with plasma astronomy, charged particle physics, magnetohydrodynamic flow, and so forth. This inter-university co-operation is a very real attempt to develop undergraduate courses which will lay the foundations for further work in this field.

Now let me close this brief survey of a fascinating new area of physics in essentially the way I began. It is rare that scientists are suddenly faced with a whole new state of matter which they had not recognized before. The plasma physicist finds himself in this situation, riding the leading edge of science. Tremendous endeavors are generated whose influence reaches into all areas of human affairs. The sensation is exhilarating.

Conversation with a Senior

(Concluded from page 27)

things that are going well. Well I've had bad times. I've had times when I've just done miserably in courses, but I think I've learned to be a better man because of it. If I could get up every morning and know that everything was going to go perfectly, I don't think I'd want to be alive. It's nice to have things go wrong once in awhile. It's only when you come to a wall that's a little bit too high that you're forced to learn new ways.

Education nowadays is a lot easier to get, let's say, than it was 50 years ago. Then if you wanted to go to college, you had to be rich. Nowadays even the poor man's son can go to college, and he can pick up the field that he's really interested in. And consequently, he can have a much better life. But you don't have to go to college. If a man likes to go out and sweep streets and he's happy doing it, and if he is actually filling a place which we do need, I feel that there's nothing wrong with this man.

If he's doing "something that we do need." Then you're relating this to society. Is this why people work?

In a sense. I feel that most people, whether they realize it or not, do feel a certain amount of obligation and that this is one of the reasons that they work.

Obligation to whom?

To society as a whole. Most people would never even think about this. They work because they have to eat, but I think they feel the obligation, too.

One of the accusations leveled at the scientific community is that they do not relate themselves to the rest of society. What about this?

I don't think this is at all true any more. You just can't get along nowadays in science without learning how to deal with people. It's a terribly important thing because science is becoming a terribly complex field—not narrow. There are very few men in science left nowadays who want to lock themselves in a lab. Although, granted, there are times that I will run over to the lab and work all night because I'm getting excited over stuff, not because I want to exclude somebody. Believe me, when something exciting happens, the first thing I want to do is run and tell somebody else.



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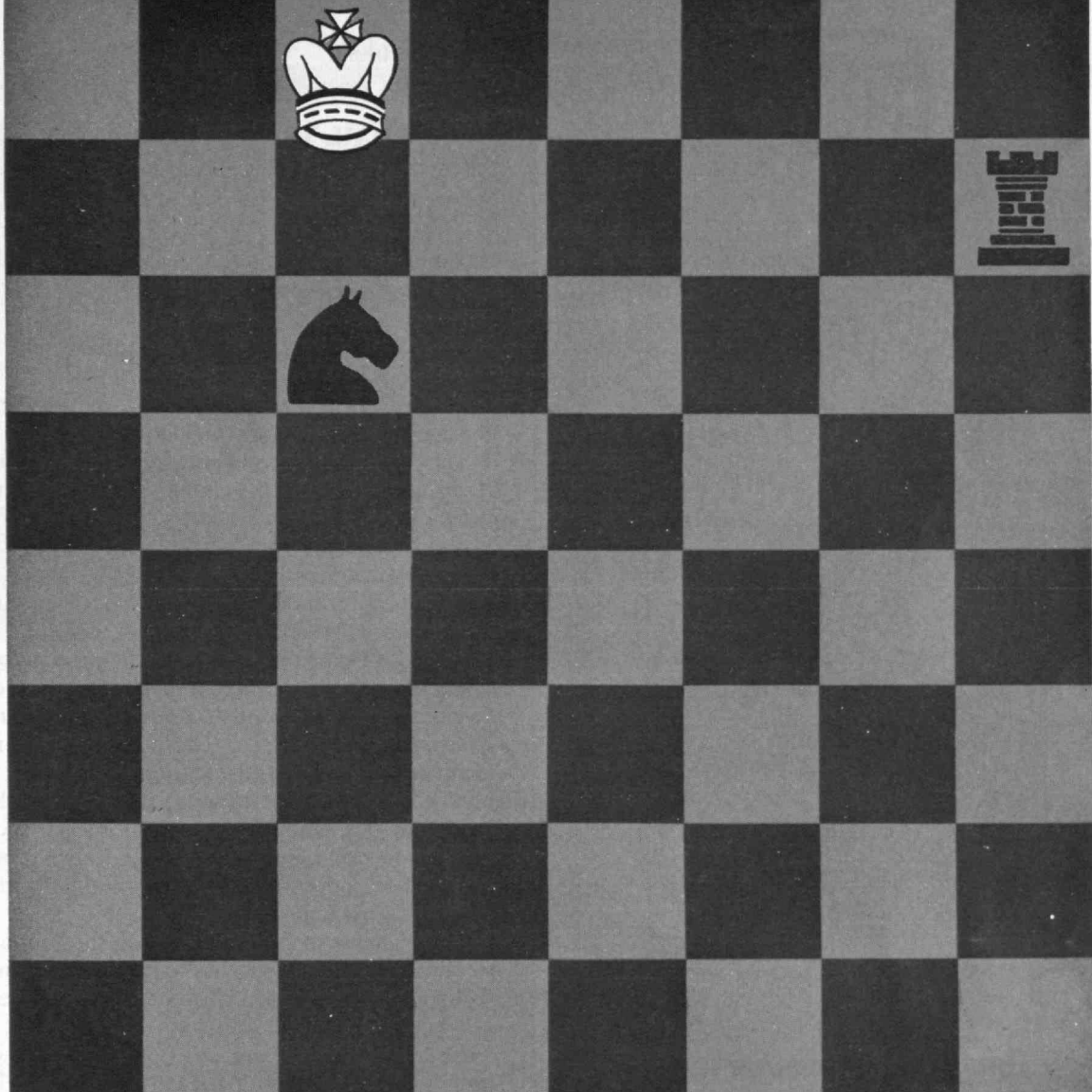
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New Books

(Continued from page 35)

URBAN RAIL TRANSIT—Its Economics and Technology, by A. Scheffer Lang, '49, and Richard M. Soberman, '61 (*The M.I.T. Press*, \$6).

Reviewed by John B. Babcock, 3d., '10

Professor of Railway Engineering, Emeritus, M.I.T.

THIS book on rail rapid transit is the result of a study under the auspices of the Joint Center for Urban Studies of M.I.T. and Harvard which was founded in 1959 to do research on urban and regional problems. It is focused on subway, elevated, and surface rail rapid transit operations, principally in the United States and Canada. The factual information is based primarily on the operations of rapid transit systems in New York, Chicago, Philadelphia, Cleveland, and Toronto. It also includes some data on the subway under construction in Montreal and on the proposed systems in San Francisco and Los Angeles. *Urban Rail Transit* is intended to fill in some of the gaps which have arisen during the half century since the publication of F. W. Doolittle's *Studies in the Cost of Urban Transportation* in 1916. The authors disclaim any attempt to present the information in sufficient detail for precise use by transit experts. But its breadth of treatment and the methods of analysis shown should commend it to professional readers and to citizens charged with responsibility in making decisions on urban transportation problems.

The contents include chapters on the supporting way, stations, rail transit vehicles, capacity, rail transit costs, the demand for urban transportation, and the future of rail transit.

Details of traffic and costs in 1960 are shown for such systems as New York City with annual car-mileage of over 300 million down to the Cleveland rapid transit system with less than five million car-miles. Although the demand for urban traffic, particularly for new or extended rapid transit systems, is a vital consideration, it is an extremely complex matter and is subject to much uncertainty. The authors have, therefore, paid particular attention to the methods used for forecasting probable transport traffic demands. Much cost data are included throughout this book but it is pointed out that such information may be used only in a broad way and not for preparing detailed estimates of construction and operating costs for specific projects. These are subject to wide variation in right-of-way requirements, whether elevated or subway structures, character of service, and numerous other factors.

Throughout their treatment of this subject the authors have maintained a "down-to-earth" viewpoint. In their discussion of the various aspects of "automation" they state that the subject deserves less emotional treatment as to its possibilities than is often accorded it in current literature. Similarly they do not believe that rail rapid transit necessarily offers a "panacea" for all urban transportation problems and ills. But they have attempted to place the facts in such balance that its relation to the entire problem of urban transportation may be viewed clearly.

(Book News is continued on page 52)



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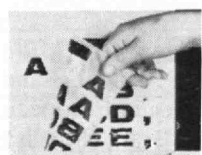
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New Books

(Continued from page 50)

LAW, MEDICINE, SCIENCE—AND JUSTICE, edited by Larry Alan Bear and Brian P. Parker, '53 (Charles C. Thomas, Springfield, Ill. \$14.50).

Reviewed by Richard I. Miller, '58

MOST LAWYERS are quite content to strive for the ultimate integration of "law" and "justice." Professor Larry Alan Bear, of the law school of the University of Puerto Rico, is bold enough to relate not merely medicine, but scientific instrumentation and technique as well, to the search for justice through legal administration.

The book is a carefully edited transcript of the papers and proceedings of the First Inter-American Conference on Legal Medicine and Forensic Science, cosponsored by the University of Puerto Rico and the Department of Justice of Puerto Rico. The 20 papers of the eminent participants are organized into seven chapters, each of which is preceded by a commentary and followed by a transcript of questions and answers by a panel of experts.

The first six chapters are devoted to specific problems of forensic science, such as the operating relationship between law and psychiatry, law and hospitals, and law and drug addiction; the seventh chapter is a potpourri ranging from technique in analytical toxicology to a discussion of whether a profession of "forensic science" actually exists. The answer is "no," but the evidence is overwhelming that in a technological age a trial lawyer preparing a workmen's compensation case has no more right to be ignorant of the nature of neurosis following trauma than a banker has to ignore advances in data processing. With the possible exception of a remarkable article by Helen Silving which probes deeply into the nature of truth and the unconscious in criminal law, this is not an exposition of theoretical jurisprudence, but rather a study that shows the doctor in the courtroom and the lawyer in the laboratory.

Have You Seen These?

RECENT books likely to be of especial interest to M.I.T. Alumni have included:

Analysis in Function Space, edited by Professors William Ted Martin and Irving E. Segal, and drawn from proceedings of a 1963 conference at Endicott House (The M.I.T. Press, \$6).

The Development of Western Technology Since 1500, edited by Associate Professor Thomas P. Hughes, and one of a series of volumes on Main Themes in European History edited by Associate Professor Bruce Mazlish (The Macmillian Company, paperback, \$1.50).

The Future of Old Neighborhoods, by Assistant Professor Bernard J. Frieden, '57, and published for the Joint Center for Urban Studies of M.I.T. and Harvard University (The M.I.T. Press, \$7.50).

Heat Transfer Thermodynamics and Education, edited by Harold A. Johnson; a volume of papers by associates and admirers of Dean L. M. K. Boelter of the University of California, including one on "Case Studies as an Aid in Teaching Engineering," by William Bollay, former Visiting Professor in Aeronautics and Astronautics at M.I.T. (McGraw-Hill Book Company, Inc., \$15).

(Book News is continued on page 54)

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New Books

(Continued from page 52)

EDUCATION, MANPOWER AND ECONOMIC GROWTH, by Frederick Harbison and Charles A. Myers (McGraw-Hill Book Company, \$7.50).

Reviewed by B. Alden Thresher, '20

M.I.T. Director of Admissions, Emeritus

"THE MOST VALUABLE of all capital is that invested in human beings." This theme, implicit but never fully realized, has been smoldering beneath the surface of economic thought for two centuries. In the last five years it has flared out as a major doctrine, of peculiar import for policy planning in the developing countries. Harbison and Myers have broken new ground in assembling statistically based estimates to support it. The classical notion of "labor" as a capacity to do manual work requiring little knowledge or skill was at best only a useful first approximation, even in Adam Smith's time, and even he recognized its limitations. Now that manual labor has been so largely mechanized, and routine or "manual" thinking is so rapidly going the same way, the concept becomes wholly inappropriate. The market value of a man, either to himself or to society, depends almost wholly on his level of education.

The authors have studied 75 nations for which data were adequate to yield estimates of relative educational development. In their words, "we are attempting a global analysis of human resource development, which admittedly is an immodest undertaking." Ideally, what

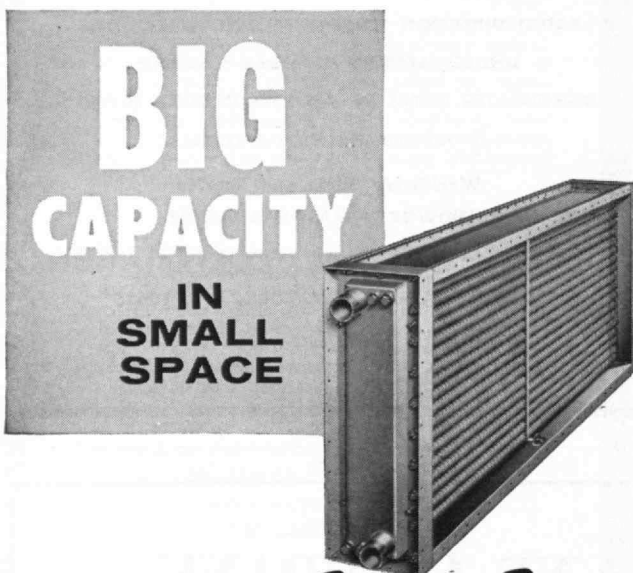
is needed is a count of the annual, net addition to the number of persons and to the number in strategic "high-level" occupations. As in all such studies, the statistics one would most like to have are not available; it is necessary to use various "second-best" measures. Within these limitations a composite index has been worked out as a basis for "slotting 75 countries into these four levels": Level I, underdeveloped; Level II, partially developed; Level III, semi-advanced; and Level IV, advanced.

The index is the arithmetic total of (1) enrollment in secondary education as a percentage of the age group 15 to 19, adjusted for length of schooling, and (2) enrollment in higher education as a percentage of the age group 20 to 24, multiplied by a weight of 5, an essentially arbitrary figure. "In our judgment, higher education should be weighted more heavily than second-level in such an index. A weight of 10 and a weight of 3 gave somewhat different results, but not significantly different."

Using this index, 17 countries were classified as "underdeveloped," ranging from Niger, at the bottom of the list with an index of 0.3, to Sudan, with an index of 7.55. It is significant that the only non-African nations in this group are Afghanistan, 1.9; Saudi Arabia, 1.9; and Haiti, 5.3.

Level II, "partially developed," comprises 21 countries from Guatemala, 10.7 to Iraq, 31.2. Level III, "semi-advanced," comprises 21 countries, ranging from Mexico, 33.0 to Norway, 73.8. Level IV, "advanced,"

(Concluded on page 56)



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NEW from McGRAW-HILL

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By BRUNO ROSSI, Massachusetts Institute of Technology. Off Press.

Unfolds a simple yet scientifically accurate historical narrative of cosmic rays: how physicists discovered them and how after a half-century of hard work, analyzed their composition.

► SENSITIVITY ANALYSIS OF DYNAMIC SYSTEMS

By RAJKO TOMOVIC, University of Belgrade, Yugoslavia. Translated from the Serbian by DAVID TORNQUIST. *Electronic Sciences Series*. 200 pages, \$9.75.

A pioneering work which treats analytical, computer, and simulation methods for defining the influence of parameter perturbations in the behavior of dynamic systems.

► INTRODUCTION TO STRUCTURAL DYNAMICS

By JOHN M. BIGGS, Massachusetts Institute of Technology. Available in October.

A self-contained treatment of the analysis and design of structures subjected to dynamic loads. Emphasis is on practical analysis and design rather than on the mathematical techniques of dynamic analysis.

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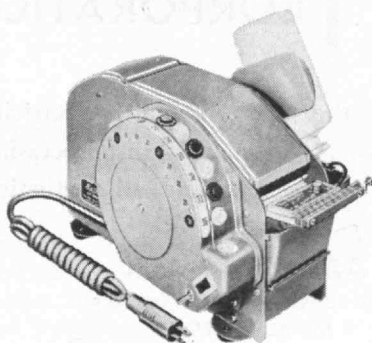
Herman Ferre, B.S., C., E., 1931

Luis A. Ferre, B.S., M.S., 1925

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New Books

(Concluded from page 54)

ranges from Denmark, 77.1 to United States, 261.3.

"It should be stressed that the ranking of these countries is less significant than the characteristics of the countries in each level as a group, or than the inter-correlations between indicators for all countries. Ranking countries principally in terms of a composite human resource development index may not be completely defensible, but neither is any other method of ranking. Some judgment must necessarily enter into any such ranking. 'Degree of backwardness' defies exact measurement."

That the composite index of educational levels has economic significance is shown by the fact that for the 75 countries, this index correlates .888 with the gross national product. There is an *inverse* correlation almost as high with the per cent of the population engaged in agriculture. Backward countries are predominantly agricultural or nomadic, and their cultures are traditional. Interestingly enough, while the concentration of engineers and scientists per 10,000 of population correlates .833 with GNP, there is virtually no relationship between the *fraction* of the higher education segment in these areas as contrasted with the fraction in humanities, arts, and law. This suggests that there is some optimum relation or balance between the "two cultures," and that the most productive economies carry the two on together in a balanced way.

The emphasis in this study is on policy planning. It is intended as a useful guide for government officials

and their advisers concerned with maximizing the rate of development in the less advanced nations. The authors make no pretense at "forecasting," but present a carefully based methodology for "target setting." The new emphasis on human-resource planning even in relatively advanced countries makes earlier conditions seem hopelessly haphazard and planless. Examples of the newer trend are the Robbins Report on higher education in Britain, and the similar comprehensive plans now afoot in France. Evidence from studies such as this points overwhelmingly toward the concept of treating education as a public *investment*, which is certain to pay off handsomely in general public well-being, rather than as a public expenditure of dubious outcome, grudgingly consented to by a reluctant electorate. For undeveloped countries, there must, however, be priorities and a balance among many urgent needs. Education usually stands so high among these that there is little danger of overemphasizing it.

We are struck by the high level of the United States in these indices, despite what we all know to be the defects and inadequacies of our educational system. The over-all impression is that the field for educational improvement is virtually limitless on a world-wide basis.

Finally, this book is a brilliant example of the intelligent use of admittedly "soft" data in the social sciences, to contribute to the practical solution of urgent human problems. A generation ago neither the techniques nor the data would have been available to make this kind of a start. It is a milestone in a movement just gathering momentum.

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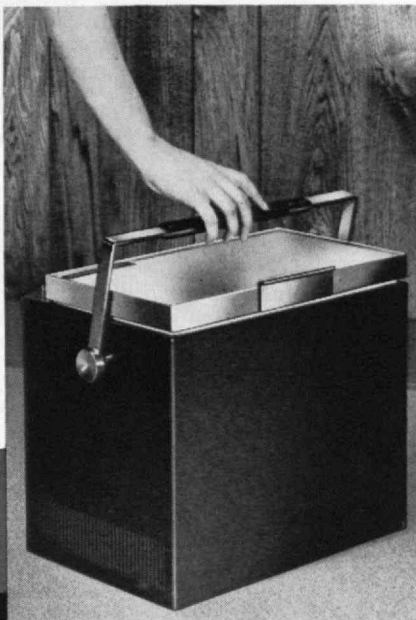
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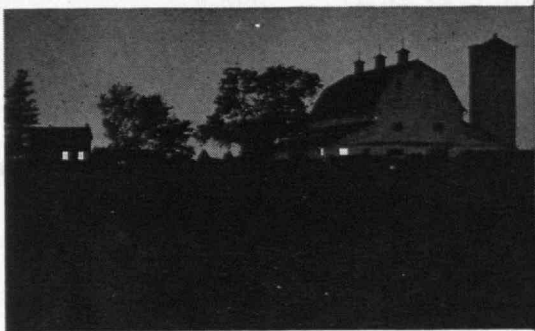
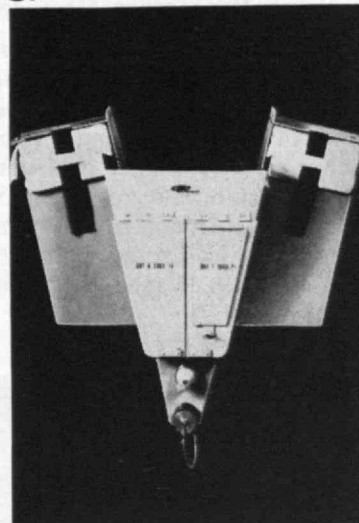
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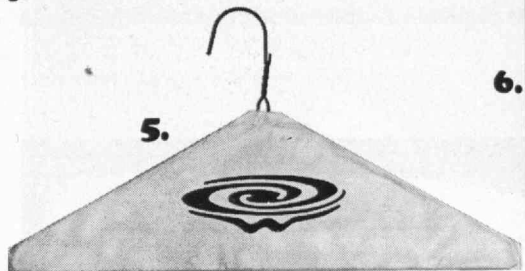
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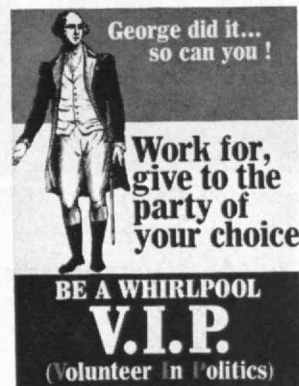
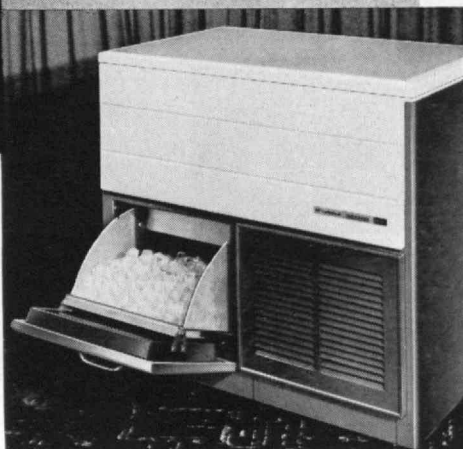
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Trend of Affairs

(Continued from page 31)

Retiring Professors Honored

M.I.T. FACULTY members retiring this spring were saluted in diverse ways. Professor Philip Franklin, for example, received a Revere Bowl for his services as Secretary of the Faculty, and former students of Professor Arthur R. von Hippel held a two-day conference on "The Structure and Properties of Dielectric Materials" in his honor. Others hailed by many as they joined the emeriti included Professors John T. Norton, '18, Eugene Mirabelli, '19, Wayne B. Nottingham, and Frank K. Bentley.



Professor von Hippel



Professor Franklin

A Bell for the Hart Museum

THE Francis Russell Hart Nautical Museum at M.I.T. now has the bell from the United Fruit Company's ship, the *Francis R. Hart*, which was built in 1938, the year that Mr. Hart, '89, died, and operated until last year. The bell is mounted in a three-foot replica of a ship belfry designed by William A. Baker, '34, and built by Gene Schneider.

Speaking at its presentation to the museum, Professor H. Guyford Stever quoted Rudyard Kipling: "'tis very little since things was first made that things has changed in the shipwright's trade." Associate Professor Steven A. Coons, '32, observed that at the Institute, however, "we are now fairing ship hull lines on Project MAC in a few milliseconds."

The 1964 Job Market

THE BIG aeronautics and electronics companies did not offer M.I.T. men as many jobs this spring as they have each year for several years, says Thomas W. Harrington, Jr., the placement officer. The number of Alumni registered as available for new positions rose, too, largely as a result of defense cutbacks, mergers, and other changes.

Starting salaries offered to men about to receive M.I.T. degrees continued to rise, nevertheless; and companies in less glamorous industries than defense and space succeeded in recruiting more promising men than usual.

Nearly 30 students found summer jobs with foreign firms.

(Concluded on page 60)

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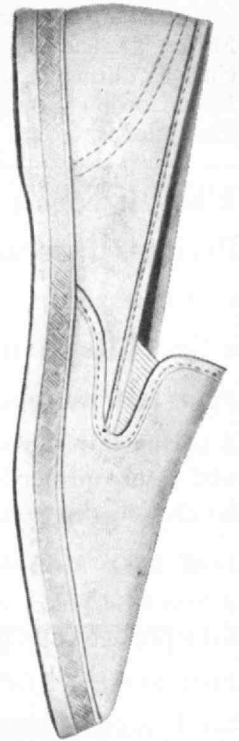
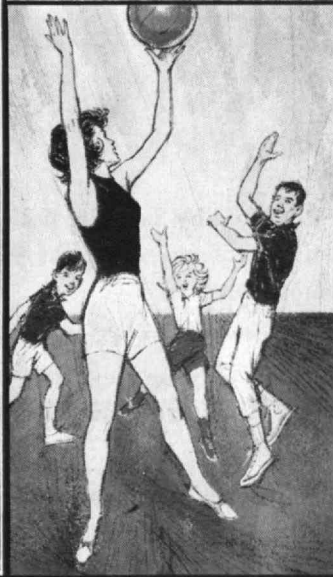


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Trend of Affairs

(Concluded from page 58)

In Professor Wiener's Memory

A SERVICE in memory of Institute Professor, Emeritus, Norbert Wiener, who died in Stockholm last March, was held June 2 in the M.I.T. Chapel. President Julius A. Stratton, '23, spoke briefly and the service was conducted by Swami Sarvagatananda, Rabbi Herman Pollack, and The Reverend Myron B. Bloy.

Professor Wiener will be cited as a "Pathfinder," along with Benjamin Franklin, Henry Ford, and other famous Americans, on National Educational Television in a series of programs now being videotaped. Benjamin De Mott, Visiting Professor in the Department of Humanities at the Institute last year, will be the host and Chairman James R. Killian, Jr., '26, of the M.I.T. Corporation, and Professors Peter Elias, '44, and Walter A. Rosenblith will be among those describing Professor Wiener's contributions to society.

Civil Engineers Get Together

NEW ENGLAND civil engineers honored Associate Professor Eugene Mirabelli, '19, for 44 years of teaching at a special gathering on May 26. Professors Charles L. Miller, '51, and Myle J. Holley, Jr., '39, spoke of recent changes during laboratory tours in the afternoon, and Dean Gordon S. Brown, '31, addressed them at a Faculty Club dinner.

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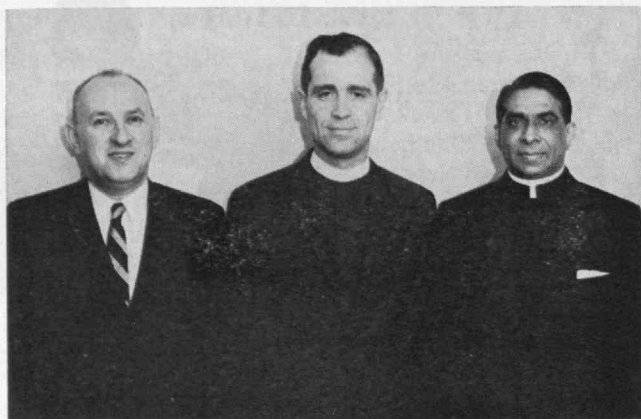
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Rabbi Pollack, The Reverend Bloy, and Swami Sarvagatananda spoke at the services for Professor Wiener.

The Alumni Council's 373d Meeting

ROBERT H. WINTERS, '33, described the project to develop hydroelectric power at Hamilton Falls in Canada in which he is engaged as chairman and chief executive of the British Newfoundland Corporation, at the Alumni Council's 373d and final 1963-1964 meeting on May 25.

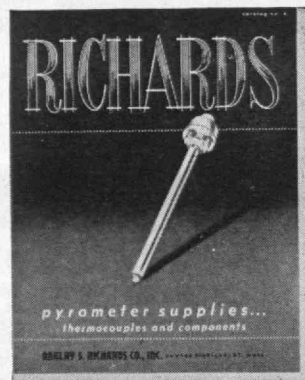
Donald P. Severance, '38, discussed relationships between students and Alumni; H. B. Richmond, '14, presented resolutions in memory of Ernest C. Crocker, '14; Leicester F. Hamilton, '14, presented the report of the Committee on Honorary Members in the Alumni Association; Gregory Smith, '30, spoke for the Alumni Fund; and Ralph H. Davis, '31, described Alumni Day plans.

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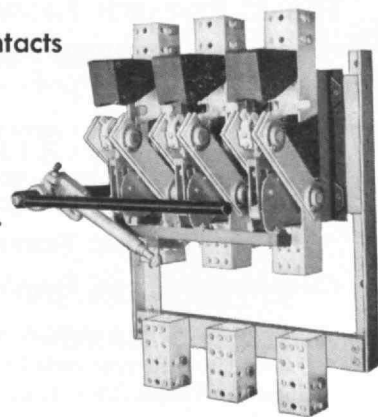
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Classmates from Other Countries

(Concluded from page 38)

Thus, it may not be too preposterous to envisage the day when the presence of the foreign student on every campus is commonplace; when every student spends at least one year of his four-to-six-year college career in an international institution; when the student will receive not a degree from Harvard, the University of Paris, or Bombay, but a certificate of professional accomplishment issued by a certifying body acceptable to all member universities in whatever country.

The costs of internationalizing education are high; yet we cannot afford not to meet those costs. At every level of the educational ladder we must train students who know their own educational system and cultural heritage and its strengths and weaknesses; students whose educational background includes the study of anthropology and of comparative education, and who cultivate the skill to make relevant comparisons among systems and have the courage to take the actions needed in the light of the comparisons made.

One would hope that the far-flung alumni of American educational institutions would take a major role in seeing that these goals are accepted and implemented, for among their numbers in every country are legislators, heads of governments, college presidents, and executives of corporations. Their business associates, their friends, and their families are international and intercultural in character and the international dimension is ever-present in their lives. Let us hope they are now ready to assume leadership in pressing for an international dimension in education everywhere.

Lowell Institute's Commencement

WALTER F. SKILLIN, a 1927 Lowell Institute graduate who is now president and director of the Union Manufacturing Company, New Britain, Conn., spoke at the school's commencement exercises in Kresge Auditorium on May 21, and emphasized that technically trained men should not overlook social understanding. "A good executive, like a teacher," he said, "is a multiplier of men's efforts." Vincent A. Fulmer, '53, Vice-president and Secretary of M.I.T., extended M.I.T.'s congratulations.

The Charles F. Park Award was presented by Frederick D. Hyland, Lowell Class of 1914, to Vesa M. Kuosmanen, who came to the U.S. from Finland in 1961. Thirty-nine graduate certificates were awarded to men completing two-year programs.

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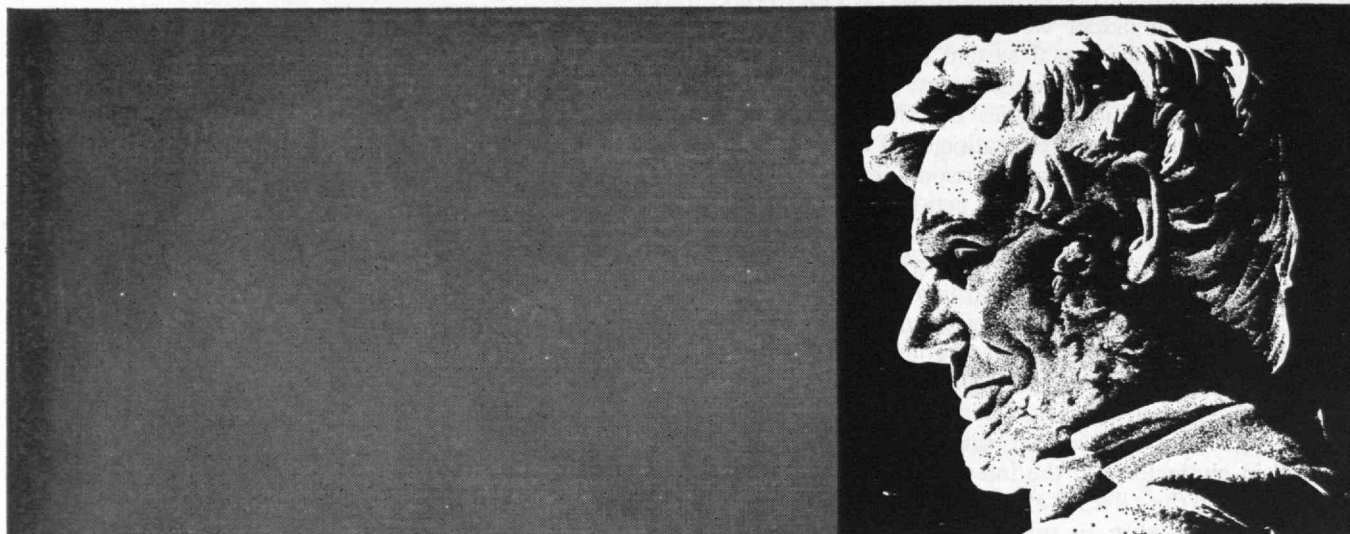
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Science and IDA



Washington is the decision-making center of the free world. In that center, IDA functions as a scientific adviser to the Department of Defense. Our working environment is the gray area of those major national problems where too little is known and too much is at risk to hazard an intuitive decision. IDA provides responsible DOD decision-makers with the scientific/technical input required to eliminate or lessen the areas of uncertainty.

Physical scientists . . . along with electronic and aeronautical engineers, mathematicians, operations researchers and representatives of many other disciplines . . . have put their minds to work at IDA. In a world in which the complexities and exigencies of our nation's defense and foreign policy continue to increase and grow more critical, IDA's programs must also continue to expand. In short, IDA finds itself in the position of requiring its own new input . . . from the nation's scientific and engineering communities.

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Institute Yesteryears

As recalled by the late H. E. Lobdell, '17

25 Years Ago

ON JULY 1, 1939, *H. B. Richmond, '14*, Treasurer of the General Radio Company, retired as the 45th President of the Alumni Association, being succeeded in that office by *Frank B. Jewett, '03*, President of the Bell Telephone Laboratories; and Professor *Arthur L. Townsend, '13*, retired as Vice-president of the Association, being succeeded by *A. Warren Norton, '21*.

Also, *George A. Packard, '90*, and *Joseph P. Draper, '00*, retired as members of the Executive Committee, which two vacancies were filled by the election of *Chester A. Corney, '14*, and Professor *Walter G. Whitman, '17*.

William R. Hedge, '96, *Willis F. Harrington, '05*, and *James M. Barker, '07*, retired as Alumni Term Members of the Corporation of the Institute, their successors for 1939-1944 being *Philip W. Moore, '01*, *Charles Edison, '13*, and *H. B. Richmond, '14*.*

► *Thomas P. Pitré*, Assistant Dean of Students since 1929, became associate dean on July 1, 1939.

50 Years Ago

PROFESSOR *Robert Hallowell Richards, '68*, Head of the Department of Mining Engineering and Metallurgy, who retired at the close of the academic year 1913-1914, had been identified with the Institute from its earliest days. He was one of the original 15 students who registered with President William Barton Rogers on Monday, February 20, 1865; and one of the fortunate 13 in the first graduating Class of 1868—following which he was appointed an assistant on the instructing staff until his promotion to a professorship in 1871. On March 17, 1875, at the "organization meeting" of the Alumni Association, he

* Later, two of the above-named were elected to Life Membership by the Corporation: Barker in 1940, and Richmond in 1952.

was chosen as President *pro tem*, and at the first "Annual Meeting" on January 27, 1876, he was confirmed as the Association's first President, serving as such until 1880. Later, on August 26, 1944, Professor Emeritus Richards became the Institute's first *Alumnus Centenarian*.

► Stone & Webster's vouchers covering the first 10 months' expenditures for the construction of the "New Technology," up to July 1, 1914, totaled \$593,716.91.

► On July 14, 1914, a gathering of Alumni at Butte, Mont., under the leadership of *Charles W. Goodale, '75*, proceeded to found the "Technology Club of Montana," now titled the "Montana Alumni Association of the M.I.T."

► Announcement was made of the establishment in the Department of Civil and Sanitary Engineering of a third option, highway engineering.

For this new option, *I. W. Litchfield, '85*, the editor of *The Review*, declared: "The time seems ripe. The automobile has introduced into state and municipal road problems a factor of exceeding importance. Just as the advance from horse trails to wagon roads demanded a fundamental revision of the methods of road building, so the requirements of the modern auto, when applied to roads fitted for horse-drawn traffic, are now enforcing other basic changes. . . .

"The automobile makes new demands in highway building. Its weight and speed and the combination have introduced new elements of wear to road surfaces very different from those of the horse-drawn vehicle. One may realize the tremendous strains to which the road surface is subjected when he considers that a machine of 4,000 pound weight moving at a rate of 50 miles per hour is no curiosity.

"The surface must take all the strain, all the push, since action and reaction are equal, and for this reason and others the wear and tear of roads used by the auto are very

substantially increased over the same items in slower-motion days. Because of the changed conditions affecting the surface of the road, the problems of road engineering have been transferred to a large extent from a consideration of the resistance of woods and mineral substances to chemical questions which at present lie in the line of bitumens and oils. . . .

"No one who is not really in affairs related to the highways is likely to have any idea of the importance of these prosaic constructions in modern economy. A tabulation for 1912 is to the point, showing the expenditures of states that were actively building roads. Altogether \$43,000,000 was expended in the country, half of which was in New York, \$23,000,000; in Pennsylvania, \$4,000,000; Maryland, \$3,370,000; and Connecticut, \$3,000,000; while Georgia, Washington, and Rhode Island passed the million mark. . . .

"There is need for research all along the line. This need applies to the materials of the pavement and to the construction and management of vehicles, and there are indeterminate items of great consequence like the kick of a tire or the suction of the tire, both of which factors are new and important where the life of the road surface is considered."

75 Years Ago

ON JULY 2, 1889, President Francis Amasa Walker was being congratulated upon the occasion of his 49th birthday.

100 Years Ago

ON JULY 4, 1864, there took place the 27th Meeting of the "Government" of the Institute, "at four o'clock P.M. this day." The minutes read as follows:

"Present, Thomas H. Webb.

"The thinness of attendance is to be accounted for by the fact of this being our National Birth Day, and the members being variously engaged in the festivities of the occasion.

"This being a stated Meeting, the Secretary necessarily notified it.

"Without transaction of any business, the Meeting was adjourned. Attest. Thomas H. Webb, Secretary."

The Nature of Man

The 1964 Alumni Seminar, September 12-14

What are man's real resources of intellect and power? How much do we know about ourselves and our destiny?

Members of the 1964 Alumni Seminar will ponder such questions as these, studying man and the universe, the workings of his mind, and his physical and moral accomplishments. These are subjects central to the problems of modern civilization and in which recent advances have outdated the formal education of many. The topics will include genetics and evolution, man in the universe, psychology, language and vision, man's relationship to modern computers, man as a social being, and the moral and spiritual aspects of modern society. The speakers will include:

Saturday, September 12 *Man and His Universe*

Prof. Vernon Ingram, "Man as a Living Organism"

Prof. Harlow Shapley, "Man Looks at the Infinite"

Prof. Philip Morrison, "Man's View of the Infinitesimal"

Sunday, September 13 *The Mind of Man*

Prof. Walter A. Rosenblith, "Computers and the Study of the Brain"

Prof. Richard Held, "Perception"

Prof. Morris Halle, "Language"

Monday, September 14 *Man and Society*

Prof. S. W. Mintz, "The Science of Culture"

Prof. Richard Douglas, "The Individual in Society"

Prof. Huston Smith, "Science and the Human Spirit"

Panel Discussion: "Man's New Responsibilities"; Dr. James R. Killian, Jr., Chairman, with six panel members including Dr. Vannevar Bush, '16, and Dr. Harlow Shapley.

The seminar will begin at noon on Saturday the 12th. It will conclude with a reception late Monday afternoon the 14th. Saturday and Sunday evenings will be devoted to questions and discussion with the teachers and their colleagues.

Developed from the pioneering 1963 Seminar, this year's program will achieve for its participants the intellectual stimulation and challenge which they first knew in their college years. Attendance will be limited to 200 alumni and their wives who can be housed on campus. There will be ample opportunity for informal discussion. All participants will be asked to prepare themselves by previous reading, which will be sent to them. The all inclusive cost will be \$75 per person. Use the coupon below to request further information and registration forms. Registration will be on a first-come-first-served basis.

Alumni Office, Room 1-280
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Cambridge, Massachusetts 02139

Please send me further information and registration forms for the 1964 Alumni Seminar.

Name

Class

Address

Club News

Western Pennsylvania Club Selects 1964-1965 Officers

Members of the M.I.T. Club of Western Pennsylvania were presented the following slate of officers for the 1964-1965 season: James B. Allen, '36, President; Eli I. Goodman, '50, Vice-president and Secretary; Hugo C. Johnson, Jr., '46, Treasurer; and James L. Taylor, Jr., '02, Jerome P. Hahn, '47, Hugo C. Johnson, Jr., '46, and Ernest U. Buckman, 2d, '46, the Board of Governors. Warren H. Howard, '44, and Ingvald E. Madsen, '33, were the nominating committee.

The club is proud of its participation as the only Alumni group in the Buhl Planetarium School Science Fair. The fair is a co-operative undertaking which annually mobilizes the educational, scientific, and industrial resources of Greater Pittsburgh region to encourage a continuing stream of able youths to provide its technicians, scientists, and engineers in the future. The club awarded its prize on the basis of excellence in the demonstration of scientific or engineering principles and ingenuity in using inexpensive materials to Roger*Vincent of Beaver Local High School, Lisbon, Ohio. His exhibit was entitled "The Fuel Cell" and it was constructed under the guidance of Walter Lineberry, his science teacher.

The objectives of the regional fair—and of its radio program, "School Science Countdown"—are to discover and encourage the science potential in all students at the junior and senior high school level, and to help the exceptionally able achieve careers in science and engineering. These ends it has accomplished, on a significantly increasing scale, for 25 years.—Eli I. Goodman, '50, Westinghouse Electric Corporation, Astronuclear Laboratories, Box 10864, Pittsburgh, Pa.

Central Massachusetts Club Learns of New Textiles

The M.I.T. Club of Central Massachusetts met on March 20 at the Yankee Drummer Inn at Auburn. This was a "Ladies Night" meeting and over 40 Tech men and their ladies attended. Most club meetings this year have been ladies nights at the suggestion of Club President Harry Duane, '57, and have proved successful.

Stanley Backer, '41, Professor of Mechanical Engineering at M.I.T., discussed the problems of textile fibers and their present and future uses. The club was honored to have as a guest Donald P. Severance, '38, Executive Vice-president of the Alumni Association.

The last meeting of the current year was to be May 8 at the Old Mill in Westminster. Hans Mueller, Professor of Physics, will discuss the art of teaching.—Arnold A. Kramer, '52, Secretary, 88 Longfellow Road, Worcester 2, Mass.

Central Florida Alumni Enjoy Barbecue Dinner

The M.I.T. Club of Central Florida met recently at the home of Mr. and Mrs. Demetrios J. Athan, '54, in Tampa. A barbecue dinner with beer, salad, and all the trimmings were served on the patio overlooking the pool and gardens. The Mediterranean-type enclosed patio with accessory buildings along the back and the main house at the front were designed by Mr. Athan who has been a practicing architect in Florida since 1956.

New officers elected for 1964-1965 are Donald E. Burke, '46, President, and Mr. Athan, Secretary-Treasurer.

On May 22 the club was to have breakfast at the Minneapolis-Honeywell Regulator Company in St. Petersburg and a guided tour of the plant and production, environmental testing laboratory, and the design and evaluation plant—all unclassified. Accompanying the group were educational counselors, Pinellas and Hillsborough High School guidance counselors, senior students who will attend Tech in the fall; and Honeywell Tech men, Thomas N. Berlage, Jr., '45, Eugene D. Purdum, Jr., '48, and Ralph Scheidenhelm, '51.—Demetrios J. Athan, '54, 825 South MacDill Avenue, Tampa, Fla.

Northern Californians Hear Dean Pitre

Thomas P. Pitre, Director of Clubs, was the guest of the M.I.T. Club of Northern California at an officers' luncheon meeting. Dean Pitre spoke of the increased assistance to be offered to the club in the future by the Alumni Association. At least once a year the Alumni Association intends to send a prominent member of the M.I.T. community to visit a number of different Alumni clubs to assure them at least one highlight meeting every year. The Northern California Club (as well as other clubs) is very grateful for the addition of Dean Pitre to the home office Alumni team.—Roger S. Borovoy, '56, Secretary-Treasurer, Fairchild Semiconductor, 313 Fairchild Drive, Mountain View, Calif.

Stein Club Views Movies of Africa

The Boston Stein Club held its spring dinner meeting on April 30 at the M.I.T. Faculty Club. Oscar H. Horovitz, '22, described his travels in Africa and illustrated his talk with films of Dakar in Senegal, Accra in Ghana, Republic of South Africa, Victoria Falls, and Kenya. The Motion Picture Division of America lists Mr. Horovitz as its only five-star (highest possible rating) exhibitor. He has won 73 awards in national and international competition, is a Fellow of the Amateur Cinema League, the Institute of Amateur Cinematographers, Ltd., and the Photographic Society of America.

The club held its annual dinner on June 6 at the M.I.T. Endicott House, Dedham, and elected officers for the coming year.—Mel A. Barkan, '55, Secretary, 10 Emerson Place, Boston, Mass.

Twin Cities Group Hear Local Surgeon

The M.I.T. Club of the Twin Cities held dinner meetings on February 26 and April 14. At the February meeting Dr. Claude R. Hitchcock, Chief of Surgery of Hennepin County General Hospital, and Professor of Surgery at the University of Minnesota, explained the pressurized operating room facilities being constructed at the Hennepin County General Hospital, and discussed the physics and physiology of hyperbaric oxygenation. Douglas G. F. Haven, '52, Director of Regional Solicitation for the Alumni Fund, reviewed the conduct and purpose of the regional campaign.

In April the Twin Cities Alumni heard a report from Donald P. Severance, '38, Executive Vice-president of the Alumni Association, who outlined the trends in admissions and enrollments. The nominating committee report was presented by Gerry E. Morse, '30. After a special vote of appreciation to retiring President Collin Alexander, '39, the club elected the following officers for the next two years: Edward L. Bronstien, Jr., '51, President; James T. Van Meter, '47, Vice-president; James C. Grace, '52, Treasurer; Harold D. Field, Jr., '48, Recording Secretary; and Keith R. Johnson, '52, Mailing Secretary.

The next meeting was to be a reception in June for local students entering as freshmen at M.I.T. next fall and their fathers.—Harold D. Field, Jr., '48, Secretary, 5117 Emerson Avenue South, Minneapolis, Minn.

New Mexico Alumnus Leaves for Turkey

A member of the M.I.T. Club of New Mexico, Colonel Louis W. Pflanz, Jr., '35, of the U. S. Army, has left Sandia Base, Albuquerque, where he was Director, Research Division, Field Command, Defense Atomic Support Agency, for duty with the Combined Military Planning Staff, Central Treaty Organization. Colonel Pflanz will be stationed in Ankara, Turkey.

William R. Perret, '30, was featured in the April 24, 1964, issue of the *Sandia Lab News* (the company paper of Sandia Corporation in Albuquerque). Bill is the project scientist for Project Dribble, a series of underground nuclear detonations, the first of which is scheduled to be made this summer. These tests will be made in the Tatum Salt Dome, some 20 miles southwest of Hattiesburg, Miss. Alumni in that vicinity are advised to batten down the hatches and secure all loose gear before Bill starts lighting his matches!

Mr. and Mrs. Charles W. Brown, '13, who celebrated their Golden Wedding Anniversary on May 8, recently moved to Columbus, N.M., following his retirement. The Browns attended the last monthly club luncheon and gave us a preview of the retirement years—and the prospect, as they described it, is attractive.—Thomas J. Raftery, '31, Secretary-Treasurer, 1505 Valencia Drive, N.E., Albuquerque, N.M.

Washington, D.C., Alumni Study Problems of Arms Control

One hundred and ten Alumni and guests of the M.I.T. Club of Washington met at the Cosmos Club on April 29 to hear William C. Foster, '18, Director of the U.S. Arms Control and Disarmament Agency, speak on "Developments at the 18-Nation Disarmament Conference at Geneva." As head of the agency, Dr. Foster is also chief U.S. negotiator at the Geneva Conference. Dr. Foster discounted the charges which have been made against him, namely, that he constitutes a one-man force who would weaken the United States by convincing the President that the U.S. should unilaterally disarm. He stated that his agency made proposals only after regular and extensive liaison with other departments of government and that all proposals were made in the best interests of the U.S., citing an instance in which the announcement of an arms cutback planned by the U.S. was postponed at his request in order to make the planned cutback an item for discussion at the disarmament conference. Dr. Foster explained that offensive weapons of mass destruction which constitute the greatest danger to both sides are the first objects of arms control and short-range defensive missiles are the last.

Dr. Foster raised several points which seemed to parallel those which had been raised approximately seven weeks earlier when J. Herbert Hollomon, '40, Assistant Secretary of Commerce, addressed the club on "Science, Technology, and National Policy." Dr. Foster said it was a misfortune that so many believe that the present prosperity rests on large defense expenditures. He (like Dr. Hollomon) was confident that a cut in arms expenditures would permit increased production and consumption of goods and services for the civilian market as purchasing power is returned to the consumer. Dr. Foster stated that 75 per cent of the engineers and scientists in the U.S. are engaged in the defense effort, and he expressed the opinion that the diversion of this particular group from direct application of technology to non-defense areas was depriving the economy of factors needed for more rapid economic growth and a higher standard of living. He then challenged those present to think of the many ways in which resources could be expended more constructively than on arms.

The question period indicated the interest in the subject. Dr. Foster's 30-minute talk was followed by 40 minutes of spirited questioning at which point President Robinson called for a show of hands of those who still wished to have the floor in order to ask their first question—seven responded, their names were recorded, and each was then called on in turn. Thus the meeting was brought to a close after 55 minutes of questions and answers. Typical of the reactions to the speaker was that of Major General (U.S. Army, retired) Charles E. Loucks, '31, former Club President, who said, "It is very reassuring to know that such a man represents the U.S. on matters relating to

arms control and disarmament." The reactions echoed the greeting which F. Alexander Magoun, '18, Class Secretary, sent to the meeting: "Tell them, I'm glad William C. Foster was born, and I sleep better nights knowing that he is in Washington." (See the Class of 1918 notes in *The Review* for July, 1963, and for April and May, 1964.)

Robinson Elected President

The following officers were elected for the coming club year: Paul M. Robinson, Jr., '44, President; Gilbert H. Lewis, '51, First Vice-president; Sylvia L. Waller, '47, Second Vice-president; Robert B. Riley, '54, Secretary; Richard R. Martin, '45, Treasurer; and members-at-large of the Executive Committee, Richard H. Abrams, Jr., '59, Robert W. Blake, '41, Merlyn J. Block, '41, John W. Brackett, '59, Donald A. Christensen, '52, David B. Cobey, '61, James R. Cumberpatch, '60, Priscilla A. Gardner, '59, Colonel Milton S. Hochmuth, '50, William C. Howlett, '49, Captain (U.S. Navy) Sterling H. Ivison, '41, Michael K. Johns, '53, Frank G. Kear, '27, Dan R. McConnell, '61, John J. Phillips, Jr., '38, Ernest W. Reisner, '30, W. Selden Saunders, '57, Paul T. Semple, '31, Stanley M. Smolensky, '41, Nicholas P. Stathis, '29, George R. Thompson, Jr., '53, and Horace E. Weihmiller, '25.

The elections followed the recommendations of the Executive Committee as developed March 3 and as previously announced to the membership. (Last year's election results as published in *The Review*, July, 1963, were in error in stating that the officers had been elected by the Executive Committee rather than by the membership.)

President Robinson introduced the chairmen, vice-chairmen, and solicitors for the Alumni Fund and commended them for their accomplishments in providing almost complete coverage of the Washington, D.C., area. He also introduced Frederick A. Hunnewell, '97, as the most senior alumnus present, and Adolph H. Wenzell, '17, as the only other alumnus present having greater seniority than the speaker.

Attendance at the meeting was approximately 20 higher than the previous meeting and is believed to be the highest since May, 1959, when Dr. Rhine of Duke University spoke on extrasensory perception. Robert R. Riley, '54, was the event chairman for this meeting as well as the preceding one. He was assisted by Dan R. McConnell, '61, and his wife, Sharon, who handled reservations and coordinated the efforts of a newly-formed, eight-member telephone canvass committee. Publicity was handled by John J. Phillips, Jr., '38.

Special Gifts Solicitation

By letter of May 6, Kenneth S. Brock, '48, Alumni Fund Director for Special Gifts, has proposed that the club extend its support of the Alumni Fund to include Special Gifts solicitations. Club

President Robinson has conferred with Sterling H. Ivison, Jr., '41, area coordinator for the Alumni Fund, regarding the appointment of a Special Gifts chairman and expects that the position will be filled by mid-June. The Special Gifts solicitations begin October 1, whereas the Regional solicitations do not begin until February 1.

The undergraduate M.I.T. Concert Band, by letter from Concert Manager William L. Schreiber, '65, to the club president, has indicated a desire to include Washington, D.C., on its schedule for a concert the last week of January, 1965, during its between-terms tour. The Executive Committee, meeting on April 23, reacted favorably. John J. Phillips, Jr., '38, is making inquiry as to the likely community response to such a venture.

The mule-drawn barge trip on the Chesapeake and Ohio canal announced in *The Review*, June, 1964, as tentatively set for Tuesday, July 28, has been postponed one week to Tuesday, August 4, but may be advanced if an earlier date becomes available.—Paul M. Robinson, Jr., '44, President, 8009 Jansen Drive, Springfield, Va.; Robert B. Riley, '54, Secretary, 100 Parkside Road, Silver Spring, Md.

Lehigh Valley Alumni See Space Facility

The M.I.T. Club of the Lehigh Valley traveled 40 miles to Valley Forge to tour General Electric's Space Technology Center on May 6. Thirty-five Alumni and guests, including eight wives, met for dinner later at the nearby restaurant of the George Washington Motel.

The tour began with a talk by Louis Michelson, '40, director of the "Nimbus" project, on the purposes and accomplishments of the center, and the test facilities which were later visited. These included huge vacuum tanks—one 54 feet high which simulates both the blazing heat and chill blackness of outer space. The "Nimbus" Space Weather Station, soon to be launched, had been checked out in this tank. A frictionless test stand was in use for development of control systems for the Orbiting Astronomical Observatory, which will be sent tumbling into space, then "zero in" on stars to become more stable than any observatory based on earth. Test facilities for investigating the response of humans under space conditions were among those seen.

The complicated, spidery and unclad appearance of the satellites themselves was in distinct contrast to the simple shapes of the nose cones and re-entry shields which convey satellites at supersonic speed through the atmosphere. Supersonic flight problems were being studied with shock tunnels, one of which, located in the Space Sciences Laboratory, was powered, in effect, by artificial lighting to reproduce the Mach 40 velocity of re-entry from interplanetary flight.—William V. Bassett, '39, Secretary, 3429 Mountainview Circle, Bethlehem, Pa.

Karl T. Compton Building Dedicated at Technion

The Karl T. Compton Building of the Department of Chemistry at Technion, Israel Institute of Technology, was dedicated this spring to honor the late M.I.T. president who called the school the "M.I.T. of the Middle East." Funds for the building were raised by the New England Chapter of the American Technion Society.

Honored guests at the ceremonies and dinner included Mrs. Karl T. Compton and Zilman Aranne, the Israel Minister of Education. During her stay in Haifa, Mrs. Compton met with members of the M.I.T. Club of Israel.

Attending for the New England Chapter were: Max Seltzer, '18, Chapter President; Joseph Riesman, Honorary Chairman of the campaign; Richard J. Marcus, '32, Honorary Co-chairman; Harris Libby, former Chapter President; and Mrs. Richard S. Jacobson, Max Bearon, '28, Mr. and Mrs. Bernhard Phillips, Mr. and Mrs. Eliot Bernstein, Mr. and Mrs. Austin Cable, Mr. and Mrs. A. Fred Monosson, '48, Dr. and Mrs. B. Alexander, Mr. and Mrs. Slate, and Mr. and Mrs. Abram Berkowitz.

Detroit M.I.T. Club Presents Student Award

The presentation of the first award by the M.I.T. Club of Detroit Student Aid Fund highlighted the April club meeting. The fund was established through local Alumni contributions and will provide aid to worthy applicants who, even with the help of an institute scholarship, could not otherwise afford to attend M.I.T. Recipient of the initial award was Donald Camph, a University of Detroit High School senior who will enter M.I.T. this fall. Don and his mother were honored at the dinner meeting. A panel discussion of the future of the performing arts in Detroit featured Leonard Leone, Ross

Caccavale, Frank Gill, and Clint Allen who represented Wayne State University Hillberry Classic Theater, the Studio Art Theaters, and the Detroit Symphony Orchestra.

Antoine M. Gaudin, Richards Professor of Mineral Engineering at M.I.T., made a special trip to Detroit to address the March club meeting. Joining the group for this affair were student counselors from 16 Detroit high schools. This stimulating meeting was aimed at giving our guests a better understanding of the Institute and the reasons for its high standing.—C. E. Valentine, 3d, '57, Review Secretary, 1061 North Woodward, Birmingham, Mich.

Southern California Club Greets M.I.T. Visitors

The M.I.T. Club of Southern California was visited in April by Roland B. Greeley, Director of Admissions, and Thomas P. Pitre, Director of Clubs. Professor Greeley was on a visiting trip to area high schools. Dean Pitre came to offer his personal assistance to the club in his new position as Director of Clubs of the Alumni Association, and it was a pleasure for all of us "old-timers" to visit with a man whom we had personal contact with during our Institute years.

In May the club made a field trip to the Space Technology Laboratories facility. This was a no-charge trip to members and visitors and was well attended. We arranged the tour through General James H. Doolittle, '24, Chairman of the Board of STL and a member of our club. In July we are looking forward to a train trip on the Santa Fe Railroad to San Juan Capistrano, where we hope to hold a dinner meeting. The date has been scheduled tentatively for July 16. Anyone interested in further details concerning this, or any of the forthcoming fall activities, should contact the secretary.—Arthur Schwartz, '47, Secretary, 144 South Camden Drive, Beverly Hills, Calif.

Central Pennsylvania Club Hears Prof. G. C. Williams, '42

The M.I.T. Club of Central Pennsylvania met on April 21 at the new Penn-Harris Motor Inn on Harrisburg's West Shore, and despite the very rainy weather there was a good turnout of members. Following a dinner and social hour for Alumni and their wives, Professor Glenn C. Williams, '42, of the Department of Chemical Engineering, spoke on "New Developments in Chemical Engineering—In Education and Research—At M.I.T." Most Alumni in this area have requested dinner-speaker meetings, and we would like to thank Dean Thomas P. Pitre, Director of Clubs, and Professor Williams for making the evening a success.

Our club was saddened to hear of two deaths since our last meeting—Percy E. Tillson, '06, and Herbert C. DeStaebler, '21. Percy Tillson, one of the founders and the oldest member of our club, was honorary secretary. We understand that Mrs. Tillson passed away shortly thereafter.

An election of officers is pending and the results will be published in the fall. This is also the last correspondence from the present secretary, who wishes to express his thanks to all members who have supported the club.—Robert K. Peterson, '48, Secretary-Treasurer, 566 Brentwater Road, Camp Hill, Pa.

Boston Area Clubs Consider Public Works

The M.I.T. Club of Boston and the Route 128 Club members and their ladies met on April 9 in the Skyline Room of the Boston Museum of Science. James D. Fitzgerald, Jr., an experienced engineer and contractor, and head of the newly reorganized Department of Public Works of the Commonwealth, explained the problems he faces and how he hopes to solve them.—John M. Reed, '51, Secretary, M.I.T. Club of Boston, Room 831, 73 Tremont Street, Boston, Mass.



ISRAELI ALUMNI met Mrs. Karl T. Compton at Technion. From left are Chaim Elata, '61, Daniel Rosenthal,

Nathan Rosen, '29, Mrs. Compton, J. G. Zeitlin, '39, Isaac Minkof, '56, Nathan Robinson, and Eliahu Traum, '57.

Class News

'95

It surely was a surprise and a pleasure to receive on May 4 a letter from our long-time friend Charles Gilman Hyde, '96, who lives at 2599 Buena Vista Way, Berkeley, Calif. 94708. Although Charles is a member in high standing of the Class of 1896, he had so much in common with members of M.I.T. 1895 he always seemed to be one of us. On May 4 he had his 90th birthday and is looking forward to going up to the Bohemian Grove for the annual encampment of two weeks, which is a busy time with concerts, talks by world renowned people, and other entertainment. . . . I want to call to your attention the \$15 million Sloan Fund gift described on page 24 of the June issue.—**Andrew D. Fuller**, Secretary, 120 Tremont Street, Boston, Mass.

'96

Charles E. Batchelder predated the letter congratulating himself on reaching his 90th birthday. The doctor tells him that he should reach the age of 110. His good wife for 63 years is four years younger than he and is in good health. Charles plays the piano every day improvising according to the mood. They propose to move to a project for senior citizens called "Laguna Hills Leisure World" now under construction on 500 acres near Laguna Beach Art Colony. The ultimate 30,000 residents will be provided with everything for their comfort and enjoyment. . . . **Guy Morrill** has written. "I feel first rate and think I am carrying my 90 years with credit. My eyes are no good, but I still can listen to baseball games and feel like a fan." His enclosed check for the Alumni Fund was credited to '96.

Walter Leland was 88 on Friday March 13 and he says "it seemed quite appropriate that I should stay home, avoiding the danger of black cats, ladders and other such elements of ill omen." There he had a regular birthday luncheon and blueberry pie, that he continues to especially enjoy. I am sorry I was not at the office when he phoned for I should have been very glad to speak to him in person. His bimonthly checkups by his doctor show a very good record of health.

Charles P. Moat had been ill for some time before his death in Burlington, Vt., on March 6. He was engaged in public health work with several institutions in Boston before going to the Vermont State Board of Health in 1901 where he spent 44 years. His wife Helen (Ferguson) Moat died April 30, 1964. . . . **Samuel T. Smetters** died at Maryhaven Rest Home

in Wilmette, Ill., on March 16, 1964. He was graduated from Northwestern University in 1894 before entering our class in Course I. Mr. Smetters attained eminence and recognition as a civil and structural engineer and during the last years of his career served as a consulting engineer to the Sanitary District of Chicago. His was the engineer for the Locks at Wilmette Harbor, development of the North Shore Drainage Canal, designer of the butterfly dam at Lockport and served as Argentina's inspector of bridges. He was interested in Egyptology and oriental rugs; his two thousand books were left to the University of Chicago. He is survived by his niece, Mrs. Ruth Smetters McConnell of Waverly, Ill.—**James M. Driscoll**, Secretary, 129 Walnut Street, Brookline, Mass.

'97

As of May 9 we can confirm the death, reported in the '96 March notes, of **John B. Taylor**, who died suddenly in Decem-

Happy Birthday

During July, August and September, two Alumni will celebrate their 95th birthdays, and 12, 28, and 46 Alumni will celebrate, respectively, their 90th, 85th, and 80th milestones, as listed below with dates of birth.

July, 1869—**AMBROSE WALKER**, '91, on the 13th.

August, 1869—**HENRY E. EDWARDS**, '94, on the 14th.

July, 1874—**CHESTER F. DRAKE**, '98, on the 1st; **JAMES D. BURNS, JR.**, '00, on the 4th; **GEORGE A. ABBOTT**, '08, on the 7th; **WALTER HUMPHREYS**, '97, on the 14th; and **EDWARD P. BROWN**, '97, the 17th.

August, 1874—**EDWARD T. FOULKES**, '98, on the 14th; and **MRS. HENRY C. GRANT**, '95, on the 28th.

September, 1874—**ERNEST WOEFEL**, '98, on the 3rd; **BENZO KATSURA**, '10, on the 18th; **MRS. PLINY B. MORRILL**, '98, on the 20th; **JAMES M. DRISCOLL**, '96, on the 27th; and **DOROTHY R. MENDENHALL**, '98, day not known.

July, 1879—**ROBERT K. CLARK**, '05, and **BEN C. MOOERS**, '04, on the 1st; **AUSTIN C. WOOD**, '02, on the 2nd; **CHARLES BOARDMAN**, '02, on the 6th; **HARRY L. GRANT**, '00, and **BERTRAM A. RICHARDSON**, '04, on the 8th; **STEPHEN A. GARDNER**, '02, on the 15th; **PERKINS BOYNTON**, '01, and **CLIFFORD S. DEWIS**, '04, on the 16th; **OLIVER M. WIARD**, '04, on the 18th; **ANTHONY W. PETERS**, '01, on the 22nd; **JOSEPH P. CATLIN**, '01, on the 25th; and **FLOYD A. NARAMORE**, '07, on the 31st.

August, 1879—**WILLIAM A. HOWELL**, '03, on the 12th; **WILLIAM B. HUNTER**, '08, on the 17th; **GEORGE E. BRADLEY**, '04, on the 21st; **JOSEPH W. BALLARD**, '02, and **CHARLES H. BURR**, '02, on the 22nd; and **C. THAYER LINCOLN**, '01, on the 29th.

September, 1879—**ALLEN B. MCDANIEL**, '01, on the 5th; **ARTHUR L. COLLIER**, '02, on the 7th; **HERBERT S. MAY**, '02, on the 8th; **ELBERT G. ALLEN**, '00, on the

11th; **PAUL R. PARKER**, '03, on the 13th; **CHARLES I. AUER**, '01, on the 17th; **CARROLL W. BROWN**, '99, on the 24th; **LAWRENCE S. SMITH**, '00, on the 27th; and **GEORGE B. BRADSHAW**, '03, on the 30th.

July, 1884—**BENJAMIN MADERO**, '06, on the 6th; **EDWARD H. TEMPLE**, '07, on the 7th; **HARRY E. FISHER**, '07, and **HERBERT L. WILLIAMS**, '06, on the 9th; **MRS. JOHN H. WILLIAMS**, '08, on the 10th; **JAMES P. STOW, JR.**, '07, on the 12th; **E. SHERMAN CHASE**, '06, on the 14th; **MAX ROHDE**, '08, on the 16th; **HARRY R. DRAPER**, '07, on the 18th; **FRED P. UPTON**, '07, on the 19th; and **JAMES B. L. ORME**, '06, on the 31st.

August, 1884—**ROLAND P. DAVIS**, '06, on the 2nd; **KENNETH G. CHIPMAN**, '07, and **JOSEPH DWIGHT**, '05, on the 4th; **CHESTER ALLEN**, '05, and **HERBERT S. HOWARD**, '09, on the 5th; **FRED P. BLAIR**, '09, and **JOSEPH DANIELS**, '05, on the 8th; **G. GIFFORD SYMES**, '07, on the 9th; **PARKER DODGE**, '07, on the 14th; **EUGENE O. CHRISTIANSEN**, '10, on the 15th; **CHARLES M. HUTCHINS**, '07, on the 16th; **J. WORTH MAXWELL**, '08, on the 17th; **MALON P. WHIPPLE**, '09, on the 18th; **MRS. RAYMOND W. PARLIN**, '07, on the 20th; **OTTO B. BLACKWELL**, '06, on the 21st; **WALTER G. DESTIEGUER**, '06, on the 25th; **CARL W. DWIGHT**, '09, on the 26th; **THOMAS H. WHITE**, '08, on the 28th; and **WHEATON I. GRIFFIN**, '07, on the 29th.

September, 1884—**HAROLD O. STEWART**, '09, on the 2nd; **ROY H. ALLEN**, '05, on the 3rd; **JOHN V. QUINLAN**, '07, on the 4th; **VICTOR J. BLACKWELL**, '08, **ALFRED R. HUNTER**, '08, **MILTON E. MACGREGOR**, '07, and **JOSEPH H. WHITE**, '09, on the 10th; **CHARLES R. BRAGDON**, '07, and **JOHN MATHER**, '07, on the 12th; **EARL H. REED**, '07, on the 14th; **RICHARD C. ASHENDEN**, '07, and **MARTIN H. EISENHART**, '07, on the 16th; **GUY E. BOYNTON**, '07, on the 21st; **HERBERT H. PALMER**, '09, on the 22nd; **JOHN EVANS**, '07, and **WILLIAM E. MAHONEY**, '08, on the 24th; and **RUDOLF H. KUDLICH**, '07, the 29th.

Club, for want of a better plan. I am sorry to call it, so far, an "off-Center" for we 'Ancients,' not given to evening affairs and not permitted to lunch at engineering headquarters. . . . With best wishes to all and hopes for fewer obituaries.—**George R. Wadleigh**, Acting Secretary, 70 Flower Avenue, Hastings-on-Hudson, N.Y.

'98

On the evening of March 30, 1964, your Secretary, representing our President **Ed Chapin**, who dared not venture out because of a bad cold, attended a dinner of the Alumni Council at the Faculty Club in Cambridge. After the dinner, President Julius A. Stratton, '23, and Professor Roland B. Greeley, Director of Admissions, reported, with the aid of slides showing diagrams and statistics, the present situation in regard to the M.I.T. students, both graduate and undergraduate. How do our students compare with those of other engineering schools, including the Ivy League? And how does M.I.T. as a school rate with other schools in the various aspects, such as: Where do the students come from and where do they go? Our productivity in graduate degrees? Our contribution to the national output? Stress was laid upon the fact that our freshman admissions are now limited to 900, and the competition is so great that there is now a need either to increase this enrollment or to stiffen the admission requirements to include, perhaps, a knowledge of calculus or some other branch of higher mathematics now being taught in many college preparatory high schools. It is felt that more women with proper qualifications should be admitted and so, without sacrificing the men, perhaps the increase in enrollment could be made up of women. It is interesting to note in this connection that a new on-campus dormitory accommodating 116 women students was completed last fall.

Robert Lacy of Baltimore, Md., is spending the summer as usual at Squirrel Island, Maine, and he can be reached at that address. . . . On April of this year we received notification from the Alumni Register that **Joseph C. Noyes**, Course I, had passed away on April 14, 1963. His address was given as Box 55, South Casco, Maine. In our 30-year class book of 1928, there is briefly recorded under his name, "Noyes Machine Company, 257 Front Street, South Portland, Maine." . . . We receive through the Alumni Register many newspaper clippings of articles written by **Roger Babson**. Needless to say we cannot include them all. However, here is a typical one on the sciences clipped from the *Georgetown, N.C., Times* of December, 1963 and duplicated in the *Hartsville, S.C., Messenger* of same date: "We are living in a new age. When I went to high school, and even college, the laboratory work consisted mainly of a few experiments in physics and chemistry. Not only are these now outdated, but much new research and discovery have been added in this era of ra-

dio, television and other wonderful inventions. Moreover, we are now in the atomic age which will develop new sources of power all over the world. An elective course in one of the sciences should be of great help in getting any kind of a job today. The main thing is to understand the various terms so that you can talk intelligently as a salesman or as a fellow worker. This especially applies to the nomenclature of the electronics industry which is still in its infancy. Although I was graduated from the Massachusetts Institute of Technology, which today is supposed to be tops in electronics, I was taught nothing in my day about that subject and therefore am ignorant in that field. Be sure your youngster takes a course in the sciences."—**Frederic A. Jones**, Secretary, 286 Chestnut Hill Avenue, Brighton, Mass. 02135; **Edward S. Chapin**, President, 271 Dartmouth Street, Boston, Mass. 02116.

'00

Some time ago I received a letter from **Arthur B. White** which, I regret to say, has not yet been mentioned in these notes. I wish to quote from it, belatedly: "I am very well, especially for an oldster. Am still able to drive my car anywhere I wish; go to my office every day; look after my rental properties and follow the stock market very carefully. My wife is not so well. She had a heart attack about two years ago and is considerably handicapped, but she gets around quite a bit at that. I have six children, one girl and five boys, 14 grandchildren and four great-grandchildren. They all live close to me except my youngest son who is a major in the Air Force and teaches at the Air Force Academy at Colorado. One son and a grandson are graduates of Annapolis and one son is a graduate of West Point; the others are variously engaged in Southern California in ranching, real estate, teaching, etc., and all are doing very well in their respective vocations. Altogether I am very proud of my family with none to be ashamed of. I follow each issue of *The Technology Review*. About how many of our class do we still have left? I imagine we are dropping off fairly rapidly now and more so as times goes on. Why do you not put something about yourself in the news column?"

Answering Arthur's question, our class list now numbers 36 names out of an original 400. We have been exceptionally fortunate recently in that we have not recorded a death since last October—seven months at the time of this writing. As to any notes about the secretary, I can only say that so far as I know I am in perfect health except for some lameness, due probably to arthritis in my knee. I keep very busy but what I accomplish is difficult to say. I am living by myself in a little house to which we moved 14 years ago, and as I have practically no help, either in the home or in the yard, I have no difficulty in keeping occupied. I have some outside interests including two children and 10 grandchildren. I take particular interest in attending practically all

meetings of the M.I.T. Alumni Council on which I represent the Class of '00. As three other members of the Class—**Stanley Fitch**, **Percy Ziegler** and **Aleck Newhall**—are also members of the Council, we hold a small class reunion each month.—**Elbert G. Allen**, Secretary, 11 Richfield Road, West Newton 65, Mass.

'01

For some unexplained reason I have just received word of the death of Dr. **Jay N. Pike**, IV, dentist in Minneapolis on April 6, 1963. In 1959 he limited his practice to orthodontics. . . . **Arthur C. Davis**, V, of Gloucester, Mass., died on March 9, 1964. He retired from business in 1960. His wife died in 1956. He has lived alone in a quiet way. He has two children and a number of grandchildren and great-grandchildren. . . . **Austin T. Hyde**, X, Rutherfordton, N.C., reports: "Mrs. Hyde passed away unexpectedly in June, 1962. I have built myself a small house on my son's estate so he can look after the old man. Have an attached greenhouse to keep me busy." . . . **J. P. Catlin**, VI, Plainfield, N.J.: "Still working. Retired 15 years ago as vice-president of Wood Newspaper Machinery Company and could not take it, so went back to work. Some years ago I bought a bankrupt company and had a grand time making it a profitable business. Then I gave the business to my wife, so now I am working for her." . . . I have had only seven replies to the Class Letter. This is the worst year we have had. If you are not interested to send me material there will be no class notes.—**Theodore H. Taft**, Secretary, Box 124, Jaffrey, N.H.

'02

John Marvin completed his trip around the world and reported in a letter to **Dan Patch**: "Had a wonderful time. In spite of having to use four legs I visited 23 cities in 15 countries, 11 of which I had never visited before. Egypt and Thailand were enjoyed most of all. Japan is of course beautiful, and I believe from what I saw that Tokyo is the most modern and efficient city in the world today. I could see no remains of the destruction (75 percent) of the war. It has the worst traffic problem in the world; during the 'rush hours' it takes three hours for the 'nonstop' buses to go from Yokohama to Tokyo—30 miles. Got a lot of fine slides for our 65th Reunion." . . . **Arthur Collier** reported that while in Florida he called on **Grant Taylor** and found him in good health.—**Burton G. Philbrick**, Secretary, 18 Ocean Avenue, Salem, Mass.

'03

Your secretary's familiar admonition to the membership for news about their daily lives has found most entertaining response from **Bill Eddy**, VI, in remote Sa-

linas, Calif. He humorously prefaced his mixture of family chronology and personal experiences with his "awaiting obit." He does not regret growing old: "It is a privilege denied to many." It appears he was born March 18, 1881, at Providence, R.I., when his mother was visiting her sister. Officially, however, Middleboro, Mass., was the ancestral home or Eddyville. Its present small park, formerly known as "The Green" was in front of his grandfather's old homestead and is commemorated by a state monument. Grandfather Eddy was owner of a Foundry and Shovel Works run by water power from a mill pond in nearby Waterville. One section of the old town was occupied by seven Eddy brothers, all over six feet tall.

William's mother was a Cushman, a direct descendant of Elder Cushman, whose only son, Isaac, married Mary Alorton. She was the youngest member of the Mayflower Party to land at Plymouth Rock in 1620. William's early life was spent at Portsmouth, an island off the Rhode Island shore in Narragansett Bay. He well remembers the ice boating when the bay froze over, and in summer the familiar clam bakes and fishing from Uncle Isaac's cat boat. At present his three living cousins on his mother's side are domiciled there and keen custodians of family history. During early school years, he, with his brother Harold, would accompany his grandfather to the Bridgewater County Fair. They started early by horse and buggy but on arrival were more interested in horse racing than agricultural exhibits, and also in the memorable line "All you can eat for 20 cents." Menu: baked beans and brown bread, corn beef hash, coffee or milk and a big wedge of Boston cream pie. He notes that today the announcement would be uttered by electronic tape and loud speaker and the price would be \$2.00.

Will's ancestry extends from the Pilgrim to the Revolutionary period, as Grandmother Eddy was the granddaughter of General Samuel Osgood, the first postmaster general in Washington's cabinet. The Osgood is carried in Bill's middle name and that of his father . . . Bill was graduated from Middleboro High School in 1898 and was too young for college, so he took a course that eliminated some of his first year courses when he entered with the Class of '03 at M.I.T. At graduation he was awarded a B.S. degree in electrical engineering, but his chum, **Earl Ovington**, the first man to fly the U.S. mail, humorously proclaimed it to be "Barely Saved." He has a keen memory and can still hear Professor Cross with his annual joke to the freshman class, telling his assistant, who had worked hard cranking the Williamhurst Static Machine to "secure a 12-inch spark." "That was a good turn you did for us." Again he added. "They say that one good turn deserves another, so please turn some more." While drawing a spark from an amber rod by rubbing it on a cat skin, the air was filled with 'mews' and 'cat calls.' However, when rubbing a glass rod on a silk cloth, Charlie would remark "I'm glad the silk worm makes no char-

acteristic cry." Bill remembers one of the proxies' lecture was described as "a circumlatory cycle of oratorical sonorosity, circumscribing an infinitesimal ideality, interred in verbal profundity."

Our class in military drill and science lectures also had dramatic scenes in Huntington Halls and upper Rogers, when the unpopular, small-statured captain endeavored to interest his listless group; but corn and beans by elastic sling shot rent the air from undiscovered redoubts. . . . After graduating from M.I.T., Bill went to Schenectady, N.Y., to the General Electric Company in the testing department, along with classmates **Andrey Potter**, **Charles Glenn** and **Bill Mitchell**, a tycoon in the electrical power field until his demise. In 1906 William was employed by the Petroleum Rectifying Company of California. His brother Harold, a graduate of the Colorado School of Mines and an alumnus of M.I.T., was chief engineer of the company. While there, Bill secured 10 patents pertaining to the electrical process of dehydration, refining and de-salting of petroleum products, some of which are still in use. He continued working at the installation of oil plants in California, Texas and in mid-continent oil fields. He traveled extensively in connection with his work by both boat and rail. During the 1929 Depression, the oil trade was so upset that by 1930 Will decided to wait it out; he retired to a country home in the Santa Cruz mountains. Here he developed the Eddy Game Farm where he raised over 100 varieties of beautiful birds and acquired a reputation in the game magazines to which he occasionally contributed. After five years of glorious living with his family of six,

he sold the farm and returned again to city life. He became director of the 9th California District for the W.P.A. He remembers telling Harry Hopkins—his Washington superior—that his record was so successful because of the many saints under his charge, as San Benito, Santa Clara, San Mateo, Santa Cruz, etc., with the main office at San Jose. The W.P.A. handled many engineering problems besides distributing surplus foods: development of the San Francisco Airport, parks, sewerage, water and electrical power plants, bridges, over and underpass construction, all required Will's M.I.T. engineering skills.

Upon the completion of this government work, after the armistice with Japan, Will worked in the shipbuilding business for five years. His final employment was in his original field—electricity. He was chief of the Guayule Project in California that restored all irrigation wells and power plants to former test condition and relinquished them to the area residents. This work has since become of inestimable value to all the sections involved and has encouraged the progress of California so that it now surpasses New York in population. Bill's lengthy stay in the Salinas area so endeared him to the area that he has retired there to its rich soil for vegetation and soothing temperatures. His interest in seeing the results of the project after seeing its early stages is keen. . . . He proudly wears his 35-year Masonic badge and slogan "the world is my country, to do good is my religion. So let us laugh and be merry while we may, for we will be dead a long time."

Jay B. Simon's new address is Apart-

Deceased

MINARD T. BARBOUR, '93, April 19
CHARLES P. MOAT, '96, March 6*
SAMUEL T. SMETTERS, '96, March 16*
HOWARD A. NOBLE, '97, April 30*
JOHN B. TAYLOR, '97, Dec. 20*
JOSEPH C. NOYES, '98, April 14, 1963*
ARTHUR C. DAVIS, '01, March 9*
JAY N. PIKE, '01, April 6, 1963*
HERBERT L. SHERMAN, '02, April 7
ARTHUR M. CHENEY, '06, March 24
CLARENCE E. LASHER, '06, April 3
MELVILLE B. HALL, '08, Feb. 8*
JOHN R. KIBBEY, '08, July 18*
WALTER W. KING, '09, March 3*
MRS. STANLEY M. UDALE, '09, April 19*
HAVEN S. MCCRILLIS, '10, April 2*
STERLING TURNER, '10, May 26
ERIC KEBBON, '12, April 18*
FREDERICK A. ROBINSON, JR., '12, Dec. 21*
C. CARHART VAN SYCKEL, '12, Jan. 12
WALTER E. MERRILL, '13, April 28*
ERNEST C. CROCKER, '13, May 18*
SIDNEY V. SMITH, '14*
SARVIS M. BAGDOYAN, '15, Jan. 1*
M. WARREN COWLES, '15, April 25*
FRANK J. HERLIHY, '15, April 4*
EDWARD E. PROCTOR, '15, March 28*
HORATIO W. MAXFIELD, '17, Sept.*
LINWOOD I. NOYES, '17, April 20*
FRANCIS P. CORBETT, '18, Dec. 29
WILBUR H. FREEMAN, '20, Nov. 3*
BRUCE T. ROGERS, '21, March 9*
DON G. SHINGLER, '21, Oct. 29*

THOMAS D. STAMPS, '21, April 12*
DAVID L. STEIDLITZ, '21*
JAMES F. BRITTAIN, '22, April 11
GEORGE T. BAILEY, '22, March 27
HAROLD A. HADLEY, '22, April 4
JOHN T. NICHOLS, '22, April 2
JOHN R. SHEFFIELD, JR., '22, Feb. 27*
FRED W. HERLIHY, '23, Sept., 1962
AUSTIN S. MYERS, '23, March 29*
WILLIS E. TEALE, '23, March 30*
ROGER E. VALENTINE, '23, Dec.*
HAWLEY S. YOUNG, '23, Feb. 6*
JOSEPH J. WICKHAM, '25, Dec.*
WAYNARD R. VOSPER, '26*
STERLING H. MORRISON, '28, Jan. 6
EDWARD C. KENT, '29, Jan. 1
CURTIS A. WHITING, '29, May 9
WILLIAM H. CAFFEY, JR., '30, May 30, 1962
KENNETH H. KLOPP, '32, Feb. 28*
MICHAEL A. EITELMAN, '33, March, 1963*
FRANK K. MACMAHON, '33, March 30*
DONALD W. HAARMAN, '34, March 1, 1963*
CHARLES P. HALEY, '38, March 25
ROBERT L. ARNOLD, '40, 1963
ALBERT W. DENHAM, '41, Sept.
CONRAD A. LAU, '42, April 18*
ROBERT L. BRYANT, '47, July 8, 1962
DONALD C. MORK, '48, April 24
THOMAS P. GOODMAN, '55, May 13
GLEN E. BRICK, JR., '59, April 26
PETER A. BOGDAN, '63, April 25*

*Further information in Class News.

ment 108, 1055 Sherman, Denver, Colo. . . . **F. Clark Durant, Jr.**, XIII, of 2 Wilson Road, Concord, Mass., passed away on December 27, 1962. . . . Our Happy Birthday greetings go to **Leroy Thwing** who celebrated his 85th birthday on May 28.—**John J. A. Nolan**, Secretary, 13 Linden Avenue, Somerville, Mass.; **Augustus H. Eustis**, Treasurer, 131 State Street, Boston, Mass.

'04

In accordance with the publishing rules for class notes the story of our 60th Reunion will not appear until the November issue of *The Review*. It will be an old story by that date, but it cannot be helped. . . . We hope to have a pleasant time in June and must content ourselves with a loud "we wish you were here" for the benefit of the absentees. We wish you all a pleasant and contented summer.—**Carle R. Hayward**, Secretary, Room 35-304, M.I.T., Cambridge 39, Mass.; **Eugene H. Russell, Jr.**, Treasurer, 82 Stevens Road, Needham, Mass.

'05

Here we are back again at home base after spending two months in the glorious State of Texas. At least everyone there spoke in superlatives about their home state, and we agreed. Again I could write volumes about our host, **Willard Simpson**, I, should space permit. Suffice it to say that he is the same regular guy he was at M.I.T. 60 years ago, that he is still young in spirit, and that in spite of the fact that "the skies are too full of big airplanes" he has promised to attend our 60th Reunion next year and will speak for himself. . . . Immediately on our landing in Boston we went to the Golden Wedding Anniversary of **Andrew Fisher, 2d**, and, of course, his rudder and anchor over all these years, Frances Fisher. It was a very interesting affair, held in the Chapel of the very old and very historic and beautiful First (Unitarian) Church in Roxbury, Mass. They were surrounded by their children, Andrew, 3d, of Albany, N.Y., and their daughters, Anne Henke of Washington, D.C., and Edith Hunter of Milford, N.H., also by all but one of their grandchildren, who took part in the entertainment following the dinner. The pièce de résistance was one of Andy's famous quahog chowders made under Andy's supervision. The entertainment consisted of the relating or acting out of incidents in the 50 years of their grandparent's lives by various of the grandchildren. One particular incident told in poetry about our romantic Andrew on his wedding day. After the ceremony he went to get his watch, sending Frances to the movies in the meanwhile. Then when they started to embark on the boat, the purser informed them that their boat left the day before. However, they finally arrived at the end of their honeymoon journey—the world's largest textile mill—in South Carolina. . . . Lest you decide this is a

joint Simpson-Fisher edition, we will get on with the rest of the news, repeating the challenge to other members of the class to fill my file with sufficient information about themselves and their families to cause me to use the blue pencil. Too much is better than not enough, so let those who have hidden their history under a barrel come across. . . . You may have noted in the May issue the reported death of **G. C. W. Whiting, I**, of Baltimore. This was grossly exaggerated as I received, while in Texas, a letter from George telling me of his blindness. Sorry George, this will be corrected and you will be back in the land of the living. . . . A letter from **Gilbert Tower, XIII**, says that he and Elizabeth have finally arranged to get started for the Pacific Coast, "having found a babysitter for our 101- $\frac{2}{3}$ years-and-still-going-strong mama (Elizabeth's grandmother). I hope to get a list of '05 men on the Pacific Coast into Gilbert's hands before he gets too far along. It will contain a portfolio testifying as to his position as assistant secretary of the Class of '05.

The rest is sad news. I had previously reported the death of **Alfred H. Kelling** on July 28, 1963. I am indebted to his daughter, Mrs. Marcia B. Weidenkopf of Bethesda, Md., for this obituary: "Alfred H. Kelling was born in Milwaukee, Wis., on May 5, 1879. He attended the University of Wisconsin and Massachusetts Institute of Technology, Class of 1905, majoring in chemistry. As a young man, he was a pharmacist in Wyoming. At the time of his marriage in 1909 to Emma B. Wullweber of Chicago, he was with Corn Products Refining Company. Prior to and during the years of World War I, he was superintendent of A. E. Staley Manufacturing Company in Decatur, Ill. The family moved to Chicago in 1920 and Mr. Kelling entered private business until 1928, when he again became associated with Corn Products Company and remained with them until his retirement in 1944, during which time he headed the Technical Department. From 1944-1946 he served the company as technical consultant to its Mexican and South American interests. He contributed seven patents for improved processing of corn products and was instrumental in the development of Niagara Starch. Mr. Kelling was a Knights Templar Mason, Beaumanoir Commandery No. 9, Decatur, Ill. After his wife's death in 1957, he lived with his daughter and son-in-law, Colonel and Mrs. Stanley J. Weidenkopf in Bethesda, Md., and also spent some time in Florida. Following a long illness, he passed away in Bethesda, Md., on July 28, 1963. Besides his daughter, Mr. Kelling is survived by a brother, Max J. Kelling of Chicago and numerous nieces and nephews."

John A. Meggison's (VI) death was briefly reported previously. His daughter furnished a summary of the things his classmates might be interested in, as follows: "It is with deep sorrow that we must write of the death of John Alexander Meggison. He was so proud of M.I.T. and never failed to look at the potential abilities and interests of the boys in our area. He had been retired since 1949 but every

engineering change at the Empire District Electric Plant caught his full attention. He read extensively and studied every type of engineering project in this area. He developed a serious digestive difficulty and in spite of surgery and all medication, he died March 15. His 82nd birthday would have been on April 2." . . . It was a great shock to me to learn of the death of **Norman Lombard, II**, at Fort Lauderdale on March 19, 1964. I had written him on March 15, congratulating him on his entrance to the '05 Octogenarian Club. Within a week I had learned of his death. I wrote Evelyn attempting to convey the sympathy of the class and received from her a beautiful letter which I am quoting in part: "Your letter, congratulating Norman on becoming an octogenarian has been on my desk awaiting my pen. We (my sister and I) had planned a large party to celebrate the big event, but he missed it by three weeks, having passed away on March 19.

"That day, I arose at 5:30 A.M., not usual for me, and Norman spoke to me. I had my breakfast and about 6:35 (an hour later) I went to our room to ask if he would be up soon so that I could start to prepare his breakfast. He was gone, having had what the doctor termed a massive heart attack, a sudden (almost assuredly) call, without pain, apparently in his sleep. The shock was and still is dreadful. He was very much respected and admired in this community where we have been for four years. He was active in all sorts of organizations, and he worked diligently on organization groups to uphold constitutional government, and stressing states rights. As for me, I am bereft, but carrying on as I know he would wish me to do, but the loneliness is unbelievable. Thank you for your letter of sympathy. I always enjoyed the reunions and being with you and your wife and so did Norman. He had a marvelous faculty for enjoying life. With an amazing intellect, he had the happy faculty of humor and the capacity to have fun and to be interested in so many facets of life. I enclose the obituary, also two letters of eulogy written to the paper. These tell how much he was appreciated."

This eulogy from a personal friend was clipped from a Fort Lauderdale paper: "Valuable Contributor Lost." "I think that something more than passing mention should be made in reporting the loss, on March 19, of a most valuable contributor to 'Letters to the Editor.' Norman Lombard was a graduate of one of the nation's foremost technical schools, Massachusetts Institute of Technology (M.I.T.); later studied law and was admitted to the bar in both Missouri and California, and for many years was engaged in mortgage and investment banking, and in the intensive study of economics. He was invited to become executive vice-president of The Stable Money Association, with headquarters in New York, which he built into an international research and educational group of leading economists in the United States and 15 foreign countries, including the heads of six European banks. The author of numerous magazine articles and pamphlets on economics, fi-

nance, and government, published here and abroad, his book, 'Monetary Statesmanship,' won him a listing in 'Who's Who in America.' Men of the caliber of Herbert Hoover and Winston Churchill were within his business experience. Norman Lombard was an economist, a student, and a patriot who knew what he was talking and writing about. His loss is not only a blow to his family and many friends, but also to the cause of restoration of constitutional government so vital to the interests of our country." Those of us who knew "Ski" at M.I.T. and at reunions later know that these eulogies are based on facts. He was our class president in our freshman year, an associate editor of *Technique* 1905, a member of the Institute Committee in our senior year and many other organizations. "Ski" and Evelyn were planning to attend our 60th Reunion. We shall meet and we shall miss him; there will be a vacant chair.

Changes of address: **Charles B. Mayer**, IV, 6457 Firmament Avenue, Van Nuys, Calif.; **Theodore P. Moorehead**, I, 424 Slaten Avenue, Oakland 10, Calif.—**Fred W. Goldthwait**, Secretary, P.O. Box 32, Center Sandwich, N.H.

'06

At a recent church supper Marion and I sat across the table from a younger Tech man and his wife, Jim Moir, '20, who is chief engineer of N.E.T. & T. While in Florida, he said, he had seen **Frank Benham**, who plays golf several days a week and looks it. He also asked about another retired telephone man, our President **Kidder**, but since then, I am sorry to say, **Jim** has needed more care, with nurses around the clock. As soon as we knew of it I talked with his sister and that day the doctor had found a slight improvement, she said. . . . In a recent note from Georgiana **Hinckley** she expressed her pleasure in getting *The Review*. She has her "limitations" but gets around with a walker or a cane and adds—"I have had a pleasant winter in spite of inactivity." . . . **Harry Fletcher** too will be getting around with a walker or a cane as he fell early in April and broke his hip. In a letter from Mary she said the operation (pin) had been performed and he would be in Jefferson Hospital probably until the middle of June, so we are sending him some cards.

The wife of **Stanley Udale** passed away on April 19 in Ford Hospital in Detroit. She was Miss Lahvesia P. Packwood '09, V., S.B. I quote from a letter from Stanley: "Since leaving Tech Lahvesia did very little work in architecture but was deeply involved with U.S. Secret Service through Joseph Murphy (see "Reilly of the White House"). . . . From the Alumni Office, in April, came a report of the death on December 21, 1960, of **Wallace Newberger**, II, who was with us only the first two years, his home address being Louisville, Ky. Neither the file card nor Registers contain any information about him, except some Louisville addresses, until 1948 when he was manager of the Churchill Distilling Company, of Lebanon Junction,

Ky., retiring by or before 1955. . . . In the May notes I reported that **Sid Carr** had sold the house in Menlo Park and planned to move, on May 15, into a condominium retirement home in Carmel. However, it was not to be. Mrs. Carr sent word to the Alumni Office that he had died April 16. Sidney Taylor Carr, VI, S.B. was born June 18, 1884, in Quincy, Mass. He was a member of the Electrical Engineering Society; shortstop on our freshman baseball team; and one of the Ladies of the Court in "The Scientific King." His thesis was "A Study of Single Phase Series Motor." Like other electricals, Sid put in two years in the apprentice course at Westinghouse E & M in Pittsburgh, then was sales engineer for Westinghouse products with a San Francisco company and landed in Honolulu with the Hawaiian Electric Company, five or six years after graduation. After four years there he landed on another island, Cuba, for a few years with Zaldo Martinez Company, then after a short hitch with the Central Hudson Gas and Electric Company, in Poughkeepsie, he moved west to San Francisco with the Petroleum Rectifying Company. In the early twenties he rejoined the Hawaiian Electric Company again, retiring in 1946, and living since 1950 at Menlo Park.

Sidney was always an interested and loyal correspondent and in spite of the distance has attended our two important reunions. In his account of our 25th at Oyster Harbors Club. **Tom Hinckley's** Class History tells how "Carr arrived from Hawaii, with his mother, and distributed leis to all and sundry—plus a kiss or two." After attending our 50th Sid wrote me at length just before our 55th to report that he was "living a happy retired life with no particular hobbies" and then enumerated the many activities that kept him busy—gardening, baseball games, auto trips up and down the California coast, a weekly bridge game with other retired guys, some dinners and cocktail parties, dinner or lunch meetings of the M.I.T. Club of North California. He was also a member of a men's club called SIRS (Seniors in Retirement) that met every month in San Mateo. Sidney didn't let a slight stroke in 1959 prevent him from continuing a busy, happy life. On July 4, 1918, he married Grace L. Forsythe at Moylan, Rose Valley, Pa. They have two sons and six grandchildren. A letter of sympathy has been sent to the family.—**Edward B. Rowe**, Secretary-Treasurer, 11 Cushing Road, Wellesley Hills, Mass. 02181

'07

In looking over additional obituary notices relative to **Sam Marx** I found one item very few of us knew about. Sam was retained by the Pullman Company in 1933 to redesign and streamline their trains, subway cars, and street cars. The first aluminum railway car was built and exhibited by Pullman at the Chicago World's Fair in 1933 and was the one Sam had designed. . . . I wrote to **Andrew W. Hull**, XIII, and congratulated

him upon having become an octogenarian on May 4, 1964. Would some of the naval architects write to Andrew at Eaton's Ranch, Wolf, Wyo. . . . A minor change is reported in **Watters Pagon's** address by the Alumni Register. Please note on your class list his house number is 1433 Bolton Street, Baltimore 17, Md. . . . Your treasurer wants to thank the members of '07 for their fine response to his request for financial aid. I have received over \$400 to date from 70 members of the class. Twenty of the men sent me more than the \$5 requested. If any of our members have not donated, this is a reminder that your check for any amount from one dollar up will be gratefully received.

John Frank noted my remarks about being a philatelist in the May notes and wrote me about his interests in this most fascinating hobby. I would be glad to hear from other '07 men who are stamp collectors. **Bob Rand** has been bitten by the same bug. . . . I am still looking for '07 members who have become great-grandfathers. . . . **Don Robbins** has done a fine piece of work in getting out the class agent's letter in regard to the 1964 Alumni Fund Drive for \$1 million. Have you done your part in sending in your gift? If you cannot give more than \$5, give it. Thousands do. If you can give more, do so.—**Philip B. Walker**, Secretary and Treasurer, 18 Summit St., Whitinsville, Mass.; **Gardner S. Gould**, Assistant Secretary, 409 Highland Street, Newtonville, Mass.

'08

The second dinner-meeting of the 1963-1964 season was held Wednesday May 13 at the M.I.T. Faculty Club, at 6 P.M. We gathered in the Cocktail Lounge and while enjoying our favorite tonics and the delicious crackers and cheese from the buffet talked over our activities during the past winter. The following attended: Bunny and Mrs. Ames and Mrs. Spencer, Bill Booth, Nick Carter, Fred Cole, Ted and Mrs. Joy, Henry and Mrs. Sewell, Joe and Mrs. Wattles. About 6:30 P.M. we adjourned to private dining room no. 6 for the usual fine dinner. It was decided to have our 56th Reunion at the Melrose Inn, Harwichport, Mass., June 12-14. . . . I am sorry to report the death of **Melville B. Hall** at Webster Groves, Mo., on February 8. Also **John R. Kibbey**, Santa Barbara, Calif., died on July 18, 1963; and **John W. Bicknell**, Hopewell Junction, N.Y., died on June 21, 1961. . . . Best wishes for a happy summer.—**H. Leston Carter**, Secretary, 14 Roslyn Road, Waban 68, Mass.; **Joseph W. Wattles**, Treasurer, 26 Bullard Road, Weston 93, Mass.

'09

We have received from the Alumni Office notices of the deaths of two of our classmates: **Walter W. King**, X, died on March 3 at the Staten Island Hospital in New York at the age of 77 after suffer-

ing a stroke in his home. Walter was born in Brooklyn and prepared for the Institute at Andover. He was most active while at the Institute being class secretary in his freshman year, a member of "Technique," Junior Prom Committee, the Walker Club, and the Chemical Society; he ran on the class relay team in both his freshman and sophomore years and was a member of Phi Beta Epsilon. After graduating he was an instructor in chemical engineering, then became an airplane pilot in World War I, after which he joined A. C. Horn Construction Company as a chemical engineer. He was a bachelor and is survived by a sister, Mrs. Phyllis Willcox. We are expressing the sympathy of the class as well as our own to her.

We received notice of the death of Mrs. Stanley M. Udale (**Lahvesia P. C. Packwood**), IV, from both the Alumni Office and from **Francis Loud**, VI, who knew her husband. She had a remarkable career. Born in Florida, she left there in 1899 and spent three years in the Arts Students League New York City, and several years in Boston studying mechanical engineering at M.I.T., but finally being graduated in Architecture. She married **Stanley M. Udale**, on July 4, 1910. She is survived by her husband, a daughter, Miss Blair P. Udale, a research chemist in Menlo Park, Calif., and a sister, Mrs. Mary H. MacBryde, of Tampa, Fla. Mrs. Udale spent the first years of World War I in London where her husband was serving on Admiral Jellicoe's staff. They returned to the U.S. in 1917 and worked for Curtiss Aircraft in Buffalo, N.Y., where Mrs. Udale's job was supervising women building airplane wings. Her husband at this time worked on the Curtiss K-12 engine. From 1918 through 1941 Mrs. Udale was associated with the U.S. Secret Service. Francis has expressed his own sympathy to her husband and we are expressing the sympathy of the class as well as our own. . . . Francis received a most interesting letter from Stanley Udale, particularly as it related to the late **Risdale Ellis**, VIII.; "Ellis and I came to M.I.T. in 1905 from England. We were in touch until he died. We ran on cross-country 1906 and in Intercollegiate New England two-miles 1907. His grandfather had been in Gladstone's cabinet. I met Gladstone in 1894 at his home. I met Churchill in 1904 when he was under my father's wing. I have his letters, also letters of Ramsey 'Mac' and others. Ellis was related to the Roosevelts (Hyde Park and Oyster Bay). Small boats and big hills attracted him. The trails on top of the range from Georgia to Maine and the sea were his summer habitat." At one time both Ellis and Stanley were involved in patent litigation in a case, Union Carbide versus Chesterfield, they being on the side of the latter.

Art Shaw sent us an envelope addressed to **Edgerton M. Bettington**, VI, Hertfordshire, England, relative to the Alumni Fund. It was marked "Return to Sender, Gone Away." At this time we have no further news of him. . . . Again, another Review year has ended, and the next number of The Review will be published in

November. In it we will report the news of the anniversary which was held at the New Ocean House followed by Alumni Day. The class officers wish everyone a most pleasant summer. Please have class news for us when we begin another year in the fall.—**Chester L. Dawes**, Secretary, Pierce Hall, Harvard University, Cambridge 38, Mass.; Assistant Secretaries: **George E. Wallis**, Wenham, Mass.; **Francis M. Loud**, 351 Commercial Street, Weymouth 88, Mass.

'10

The newspaper notice of **Haven S. McCrillis'** death is as follows: "Morning Eagle-Tribune, Lawrence, Mass., dated April 3, 1964—Haven S. McCrillis, 11 Hobson Street, Methuen, died at Lawrence General Hospital after a short illness. He was 77 years old. Mr. McCrillis was a master electrician and taught electricity and later radio and television at the former Lawrence Continuation School. He was also a noted lecturer on the fire hazards of television and radio. For many years Mr. McCrillis was active in the communications division of the Methuen Civil Defense Department. Mr. McCrillis was born in Dorchester and graduated from M.I.T. with the Class of 1910. He was the widower of C. Jeanette (Malbon)." . . . Your class secretary apologizes for the omission of class news in the last issue as he was away on a mid-winter vacation. . . .

The following is from **Kenneth Armstrong**: "An outline of my history shows three major lines of activity: earning a living, civic work and fraternal activities. Though these overlapped and were interrelated to some extent, the first was, of course, predominant in my early years, the second in my middle years, and the third in my senior years when I no longer had to work for a living. During my working years the United States Government was my principal employer. A few years after graduation I secured a civil service job with the Interstate Commerce Commission on the railroad valuation. This required considerable travel, but within a limited area. While on that job I married a girl, Lillian May Elliot, who had been my boyhood playmate, but who moved away and did not reappear in my life until we were teen-agers. We were married at her home in Winchester, Mass., on September 15, 1915, and at first she accompanied me on my travels. Because we wanted to set up a home I got a transfer to the I.C.C. home office in Washington, D.C. We moved to Washington on April 2, 1916, and it became our home until Lillian died exactly 37 years later. In 1922 I resigned and went into the real estate business in Washington, which was active in the post-World War I years. The great depression caught up with me in 1930, and I secured another civil service job with the office of the Supervising Architect of the Treasury, which later became the Procurement Division and then the Public Buildings Administration. At first I was a computer and estimator, but later I got into appraisal work, testifying

as an expert in condemnation proceedings. I was increasingly called upon by Department of Justice attorneys to aid them in the defense of Court of Claims suits arising out of contracts for public buildings construction. I accompanied them to hearings held in various parts of the United States. In January, 1943, a job was created for me as consulting engineer in the Justice Department. This job was abolished in October, 1947, and I was left hanging in the air. I took another civil service examination and in December, 1947, secured a job as engineer of pavements and grounds with the Army Air Transport Command, which the following year became the Military Air Transport Service of the Department of the Air Force. On this job I had some world-wide travel at Uncle Sam's expense. I went north as far as Greenland and Iceland, east to Dahrhan in Saudi Arabia, south to north Africa and Liberia, and west to Hawaii and Johnston Island. I certainly appreciated this opportunity though it took me away from home a lot.

"Despite my frequent absences from Washington I entered actively into civic affairs in that voteless community, particularly in the movement to restore the American right of local self-government. I was an officer in several suffrage organizations, and was a delegate to the Federation of Citizens Associations, an unofficial civic group, for several years, nine of them as treasurer. I sometimes represented the city at out-of-town conventions with a more or less official status. All this was without pay. By study and research I acquired considerable knowledge of municipal government, taxation, city planning, zoning, etc., which stood me in good stead in my later years in Florida. On the fraternal front, I joined the Masons in 1918 and four years later was master of my lodge. Lillian and I joined the Eastern Star in 1919, and she was matron of our chapter in 1928. Our two sons were born in Washington, William on October 8, 1917, and Howard on January 2, 1923. Howard saw service in the Coast Guard during World War II. He was married shortly thereafter and now resides with his wife and three young children, two daughters and a son, in a Maryland suburb of Washington. William married young, before he was 20, and so did not get into military service. Two sons and a daughter were born to him while he resided in the Washington and Baltimore area, and another daughter after he moved to Florida in 1946. His older son, Billy, is married and has a two-year-old daughter, my first great-grandchild. They have a home a few miles from me. The younger son, Jimmy, enlisted in the Air Force when only 17 years old. While stationed in Grand Forks, N.D., he fell in love with a local girl, and they were married in a Roman Catholic church in Crookston, Minn. They recently became the parents of a daughter, my second great-grandchild. The older daughter, Janet, lives with her husband, Richard Ward, in North Miami. They expect a baby any day now, who will be my third great-grandchild. After our son Bill moved to Opa-Locka, Fla., we frequently visited him and so got to

know the place. Lillian and I planned to move there when I retired, as anticipated, at 65 years of age. But she had a heart attack in January 1952, and I retired two months later in order to be with her, as I was then doing my world traveling. So I took a consulting engineering job in nearby Maryland and commuted. Fifteen months after her heart attack Lillian died while visiting our son in Florida, and as soon as I could I stopped working and went to Florida to live.

"To take my mind off my great loss I plunged into civic and fraternal activities. I was the first planning director of the City of Opa-Locka, and subsequently served intermittently on the Planning Council, the intermittency being due to my rather frequent quarrels with the local politicians. All this was without compensation, of course. I was a Republican precinct committeeman for a couple of years. I ran for election to the City Commission (non-partisan) in 1956 but did not quite make it. I joined the Florida Planning and Zoning Association and became active in the South Florida Chapter, of which I was recently elected to the Board of Directors. On the fraternal front I continued my Masonic and Eastern Star activities, particularly with the youth organizations, the Order of DeMolay for boys and the Order of the Rainbow for Girls. I have been awarded the Honorary Legion of Honor by the DeMolays and the Grand Cross of Color by the Rainbows. These are awards for meritorious service, and you do not ask for them. Thus you will see that I have led a rather undistinguished, though variegated and interesting life. I accomplished nothing of note in my first major line of activity, that of earning a living. I did earn a pretty good living, however, and thanks to my M.I.T. training. I was always more interested in the work I was doing than in piling up money, but I retired with some capital, a quite adequate civil service pension, and a small amount of social security. I gathered a few distinctions in unpaid civic work, but most of my honors have come through my fraternal activities. I live all alone in a small five-room house right across the street from the Opa-Locka Masonic Temple, about a mile from my son Bill's house. I don't know how many more years I have ahead of me, but, though still in excellent health I have put everything in order for the grim reaper. All my descendants are living, two sons, seven grandchildren, and two-great grandchildren, with a third on the way. So the Lord has been good to me. I have lived a good life, and am still living it, though at a somewhat slower pace."

Ludwig Rosenstein, San Francisco, sent the following information concerning his work as a chemical consultant: "San Francisco. Desalination—the changing of salt water to fresh—has been brought a step nearer its economic solution by the invention of two chemical engineers and the issuance of U.S. patent number 3,098,733 on July 23 of this year. This patent, which was filed over six years ago, was granted to Dr. Manuel H. Gorin and Dr. Ludwig Rosenstein, both of the San Francisco Bay area. Dr. Rosenstein, of 2010 Lyon Street, San Francisco, graduated in chem-

ical engineering at Massachusetts Institute of Technology in 1910. He remained as an instructor until 1912, when he was invited by the late G. N. Lewis to participate in the development of the chemistry department of the University of California. In 1914, Dr. Rosenstein and his co-worker, Dr. Elliott Q. Adams, became the first recipients of the Ph. D. in chemistry from U.C. After wide industrial experience, Dr. Rosenstein joined the staff of the newly formed Shell Chemical Company and remained as assistant to the president until 1942. After various industrial and consulting assignments in New York, he returned to San Francisco in 1947 and set up a technical consulting practice. Gorin and Rosenstein met and became associated in 1948. The water problem first aroused their interest in 1952 when its importance was made evident by the formation of Office of Saline Water in the Interior Department."—**Herbert S. Cleverdon**, Secretary, 120 Tremont Street, Boston, Mass.

'11

Worcester Academy Class of 1905 Alumni Notes furnish the following item of interest to us. "**F. Harold Daniels** has been elected to receive the honorary 33rd Degree, highest award in Scottish Rite Free Masonry. He will receive the degree in September, 1964. He was one of 11 Massachusetts residents elected to receive the award at the annual convention of the Scottish Rite Free Masonry in the Northern Jurisdiction held in Boston the week of September 23." Congratulations, Fred. . . . **Sam Schmidt**, VII, sent me some information regarding **Abraham Shohan** whose death was reported in the May Review. "I knew him quite well. He worked at the Panama Canal after graduation, and in 1919 I induced him to join with me a Relief Unit which was sent to Poland by the American Joint Distribution Committee. He married Miss Jessie Bogen, a member of the Relief Unit. His name is mentioned in the book "The New Poland" by Professor Fisher of Yale. Incidentally, my name is also mentioned there." Sam also sent a clipping from The Cincinnati Post and Times Star which features the story of the Orthodox Jewish Home for the Aged in the city, where Sam lives. The final paragraph reads: "One resident, Samuel Schmidt, 80-year-old editor emeritus of the 'Every Friday,' a weekly newspaper on Jewish affairs, is the president of the Friendly Club, a semi-legislative organization of the residents, and considered the 'elder statesman' of the home. . . . Each day he goes to his downtown office to work on the paper. In the afternoon he works in his room writing a book about his life—how he migrated to this country when he was 12 from his native Lithuania; about his student days at M.I.T., and his work as a member of several relief and refugee re-establishing teams in Europe after both world wars."

The first suggestion for our 55th Reunion comes from **Harold L. Robinson** who writes: "As regards the 55th Re-

union my opinion would be to hold it at M.I.T. Certainly not on the Cape which for the 50th was not too popular. . . . After three and one-half months spent in Florida, we sold our home and took an apartment in the house of my oldest son. Our new address is 34 Laurelwood Road, Holden, Mass. . . **Warren** and **Marjory Simonds** spent two weeks with us in St. Augustine. . . I hear a couple of times a year from **Bert Fryer** and also from Ned Mason, '12. . . **Harry Latham**, '93, called me recently, and I intend to go to Worcester and call on him soon. Except for his eyes he seems very well." . . . My best wishes for a pleasant summer and thanks to those who have made it possible to have 1911 notes in each issue of Volume 66 of The Review.—**John A. Herlihy**, Treasurer and Acting Secretary, 588 Riverside Avenue, Medford, Mass. 02155.

'12

Word has just been received of the death of **Frederick A. Robinson, Jr.**, who passed away at his home at 148 Weld Street, West Roxbury, Mass., on December 21. . . . Services for **Charles C. Jones**, a civil engineer with the Tredennick-Billings Company for 30 years, were held March 2 in the Church of the Epiphany, Winchester. Mr. Jones, who lived at 52 Trowbridge Street, Cambridge, died February 29 in Winchester. He was 77. A graduate of Yale, '09, and M.I.T., Mr. Jones was a member of the Yale Club of Boston and the M.I.T. Alumni Association. He was a member of the Massachusetts Building Congress, the Boston Master Builders Association and the Masons. He leaves two daughters, Mrs. Susan M. Johnson of Winchester and Mrs. Sarah C. Archibald of Lynbrook, N.Y.; and two sisters, Mrs. Harriet Sprague of Williamstown and Mrs. Catherine Gay of New Hartford, Conn. . . . **Eric Kebbon**, who had been ill for the last few years, passed away April 18. The following is from The New York Times: "Eric Kebbon, a retired architect who designed more than 100 New York City public schools and additions to schools, as well as other public and private buildings, died yesterday in St. Barnabas Hospital for Chronic Diseases in the Bronx. He was 73 years old. Mr. Kebbon, who lived at 1105 Park Avenue, was appointed by Mayor Fiorello H. LaGuardia as architect of the Board of Education and superintendent of school buildings, design and construction in 1938. Schools he designed include Benjamin Franklin, Forest Hills, Fort Hamilton, James Fenimore Cooper and Joan of Arc High Schools. He retired from his city posts in 1951. . . . His James Fenimore Cooper Junior High School in Manhattan received a certificate of merit from the New York State Association of Architects, and another school building he designed received a medal of the Municipal Art Society."

"A graduate of the M.I.T., Mr. Kebbon was president of the Class of '12. After study abroad he returned to M.I.T.

as resident architect for the construction of new buildings costing \$6 million. He was associated with Welles Bosworth ('89), noted architect. In 1917 he was commissioned a captain in the Corps of Engineers, and later was promoted to major. After the war he resumed his association with Mr. Bosworth and had charge of plans for the American Telephone and Telegraph Company office building on lower Broadway, the Western Union Building on Broad Street, and other structures. From 1921 to 1938 Mr. Kebbon engaged in private architectural practice and concurrently in 1934 and 1935 as a consultant architect to the United States Treasury Department. He designed postoffices and courthouses in Tallahassee, Fla., and Greenville, S.C., and postoffices in Poughkeepsie, N.Y. and New York City. Mr. Kebbon designed housing developments and country houses in New York, New Jersey, Connecticut, Delaware and Massachusetts. From 1956 to 1958 he was associated with the architectural firm of McKim, Mead and White. He retired from practice about five years ago. He was a fellow of the American Institute of Architects, a former vice-president of the Architectural League, an associate of the National Academy of Design and a member of the National Sculpture Society, the National Council on Schoolhouse Construction, the Society of Mural Painters, the Society of Officers of World War I, and a charter member of the American Society of Military Engineers. He belonged to the Century Club and Phi Gamma Delta. Surviving are his widow, the former Jane Holmes Jutte; a son, Eric, Jr.; a daughter, Mrs. David MacLaren Irwin; and grandsons.—**Frederick J. Shepard, Jr.**, Secretary, 32 Chestnut Street, Boston.

'13

The next few months will be active ones for you politicians and men of leisure. Many of our travelers and southern sojourners have returned to their summer homes: **Gordon** and **Ethel Howie** are again at Drake's Island, Wells, Maine; **Charlie Thompson** enjoyed a very pleasant visit to California with his daughter and family; **Dr. John A. Gann** has returned from Lake Worth, Fla., to Midland, Mich. ("Doc" have you taken up a residency in Florida?); **Lester** and **Ethel Gustin** are back in Winchester. Lester carries on frequent phone calls with the Capen family. **Bill** and **Ellen Brewster** have just returned from a western trip where they visited one of their daughters and they called us to relay the news that they enjoyed the hospitality of the **Mattson** Manor, and that **Bill** and **Jo** send their best wishes to all '13ers; they will welcome any of their friends at Golden, Colo. . . . **Joe MacKinnon** just can't stay away from the Institute. His latest address is Apartment 2-20A, 100 Memorial Drive, Cambridge, Mass. 02142. We know that "Doc" would enjoy hearing from any of his classmates, and whenever you are near M.I.T., call him. . . . Thanks to Lester Gustin and the Boston

Herald, we regret to report the passing of one of our friends. **Walter Everett Merrill** died suddenly at 75 years April 28, 1964. Walter received a degree from Harvard in 1911; a B.S. degree at M.I.T. in 1913; a B.A.A. degree from Boston University in 1923. He served the Commonwealth of Massachusetts for over 46 years, affiliated with the Department of Public Health as senior sanitary engineer. Since his retirement in 1959, Merrill has been very active in his native city, Somerville, Mass., in community affairs as a member of King Solomon Lodge and other clubs. Also as a member of the North Congregational Church of Cambridge, he served as chairman of the 100th anniversary celebration, as well as the toastmaster at the anniversary banquet. All of us who knew Walter extend to his dear wife Florence our most heartfelt sympathy.

It is with a great deal of pleasure that we have lately received a copy of a citation awarded to **Edward Hurst** by the Carborundum Company and we quote: "By a letter dated May 11, 1935, and signed by Edward Hurst, Vice-president of United Cotton Products Company, Carborundum first learned of a concept of 'putting abrasives into our fabrics rather than on the surface.' After extensive experimentation and negotiations, the original license agreement was signed on July 11, 1940. Nearly a quarter of a century later, fibrous bonded abrasive products under many brand names are still penetrating new markets throughout the world. An inventive mind, creative engineer, and ceaseless pioneer; a self-confident, technically competent and an irresistible salesman; a strong man of deep sincerity and rugged integrity, yet endowed with a keen sense of humor; a loyal friend, respected and admired by his associates: Edward Hurst is awarded this citation on the occasion of his retirement as president of United Cotton Products Company for rendering service extraordinary to industrial progress through improved abrasives. Dated October 30, 1963: The Carborundum Company, W. H. Wendell, President."

It has been noted that **Bill Herbert** has deserted his State of Washington at Edmonds and settled at 22 Mesa Avenue, Piedmont, Calif. 94611. Good luck to you, Bill, and we wish you would write why you made this move. If our accounting is correct Florida leads California for 1913 residents. The last we heard from Bill was just prior to our 50th. He advised at that time that circumstances prevented him from joining in the festivities but we quote in part: "If my wife Marguerite were still here it might be different. Our three boys—Harvard '41, Stanford '46, and M.I.T. '47, were all Navy in World War II, and are now well established engineers in Seattle and San Francisco—seven eager grandchildren and a proud family." . . . **Stanley W. Parker** is still in Palo Alto, Calif., but now resides at 850 Webster Street. Even though you did not grace us with your presence at the 50th, Stan, we would be very much honored to hear from you. We also would appreciate hearing from **Robert Daggett**, **George Duncan**, and **Ellis Hartford** who also for several reasons did

not attend the 50th but they did write to **Howard Currier**, our very efficient California correspondent. . . . It was noted in the Boston Traveler, April 28, 1964, that our very good friend Dr. Vannevar Bush, '16, Honorary Chairman of the Corporation of M.I.T. was honored as one of the three "Great Living Americans" by the U.S. Chamber of Commerce, together with General Lucius D. Clay and John J. McCloy. "Bush has been one of the nation's leaders in the rapid development of science and engineering during the last 40 years. He has been a pioneer in computer technology and was outstanding for his services in mobilizing science during World War II. He is a former dean of the School of Engineering at M.I.T. and former president of Carnegie Institute." We of 1913 are very proud of you, Dr. Bush. Thus endeth our efforts for this year. Look for more news in November.—**George Philip Capen**, Secretary and Treasurer, 60 Everett Street, Canton, Mass.

'14

For the first time, a classmate's name has been omitted from the Class List by mistake. **Eugenio Gaza-Sada** is listed in the Alumni Register, but was omitted from the typewritten list, and I did not catch it. I remember Gaza-Sada well. He was graduated from Course I, and his address for years has been the same: P.O. Box 755, Monterrey N.L., Mexico. The omission was discovered when President Stratton sent him an invitation to attend our 50th Reunion. We hope he was able to be with us. . . . Some of our classmates on the Reunion Committee have unfortunately had a rough time lately. The death of **Don DesGranges** was reported in the May issue. **Charlie Fiske**, as reported in June, had a stroke but improved so rapidly that he expected to be with us at the reunion. Your secretary saw him just before these notes were written, and he seemed to be in fine condition and was leaving the hospital the next day. . . . **Art Peaslee** had a severe heart attack and he is improving rapidly too. Art says he could have come to the reunion, but that the doctor was afraid it might have been a bit too strenuous. . . . There are several members in the same condition, so it might be a good idea to arrange for an "old man's club."

Sidney Vanuxem Smith, Jr., who took some special classes in Course III, is reported to have died. We do not have any further data. His home was in Marysville, Calif. . . . Just as he was helping prepare for our 50th Reunion, our classmate **Ernest C. Crocker** died suddenly on May 18. He prepared for the Institute at Dorchester High School. We quote from his Boston newspaper obituary: "Ernest C. Crocker, 75, pioneer research chemist in odors and flavors, known as 'the man with the million-dollar nose,' died yesterday at home, 40 Lincoln Street, Belmont. Widely known as a lecturer for the American Chemical Society, he was with Arthur D. Little Company of Cambridge

from 1922 to 1954 and then served as a consultant. A holder of 16 patents, he was author of a book "Flavor" and had written for many scientific publications. With Lloyd Henderson, an early associate in the Army's chemical warfare service in World War I, he developed an odor classification system. After World War I he returned to M.I.T. as a research chemist until he joined Arthur D. Little Company. He served as an editor for Mark's Handbook of Engineering and was a contributor to the Encyclopedia of Chemical Technology. He lectured for the American Chemical Society in 40 states and served as chairman of its northeastern section in 1948-1949. He was a charter member of both the Institute of Food Technology and the Cosmetic Chemists Society. His hobby was botany." In addition to his chemical interests, Crocker was one of the early experimenters with wireless. He leaves his wife, Freda (Weinold); two sons, Dr. Allen C. of Natick and C. Charlton of Chicago.—**H. B. Richmond**, Secretary, 100 Memorial Drive, Cambridge 42, Mass.; **Charles P. Fiske**, President, Cold Spring Farm, Bath, Maine; **Herman A. Affel**, Assistant Secretary and Class Agent, R.F.D. 2, Oakland, Maine; **Ray P. Dinsmore**, Reunion Chairman, 1 Overwood Road, Akron 1, Ohio.

'15

Do you realize it's only 11 months to our 50th? The dates are set (June 11-14), the Committee has met. Make your plans to be there. "1915 The Class Supreme"—it's easy to see why! On January 17, 22 classmates and two guests met at the Chemists' Club in New York for our annual dinner there. **Larry Landers** and **Bur Swain** again set this up and deserved and received a resounding hand of applause for their work and interest in making this such an outstanding and successful class evening. From far away places to compete for long distance honors came **Sam Berke**, Lakeville, Conn.; **Larry Quirk**, Middletown, Conn.; **Henry Daley** and **Dick Bailey**, Philadelphia and the Winnah, **Ben Neal**, Lockport, N.Y. From metropolitan New York: Jerry Coldwell, Alton Cook, Warren Cowles (deceased), Joe Livermore, Bur Swain, Gil Peakes (Hooray for XIV), Ray Walcott and Speed Williams. From Boston: Larry Bailey, Bill Brackett and guest, son-in-law Sid Henley, Sam Eisenberg (deceased), Larry Landers, Azel Mack, Archie Morrison, Wally Pike, Pirate Rooney and son (ex-marine) Gerry, and Fred Waters. After a cocktail hour, the old **Pirate**, stirring as ever, opened the evening with a rousing "We are Happy." **Sam** treated us to wine at dinner—a delicious dinner that Bur and Larry went all out to set up. Last minute cancellations from regular attendees Phil Alger, Herb Anderson, Sol Schneider, Orton Camp, Wayne Bradley, Stan Osborn and Bill Spencer (his first absence in years) robbed us of their company. With them we missed these luxurious loafers who were in Florida: Art Bond, Ralph Hart,

Otto Hilbert, Forest Purinton and that perennial Gold Coaster **Jim Tobey**, who wrote he was suffering intensely in the 80 degree heat on the West Palm Beach. Oh my! . . . **Whit Brown**, suddenly laid up at home, couldn't make the trip from Boston and generously contributed the cost of his cancelled reservation to the class. There's a guy! At our dinner Ben spoke briefly of our 50th Fund. After dinner more than half the crowd adjourned to our headquarters room upstairs for an evening of nostalgia and soft singing led by Speed and Archie.

On April 20, **Mary Plummer Rice** wrote from Rio: "I have just arrived here from a wonderful freighter trip from San Francisco around South America—7 weeks—through the fabulous Straits of Magellan followed by 16 days in Buenos Aires, where my brother and three generations have lived since 1910. I was so gaily entertained that I need the 17-day trip on the Italian Line to Naples to catch up. I'm getting old!" That last is an unusual feminine confession. Mary is really remarkable. She told us these plans when we had our delightful visit with her last summer in San Francisco. Long may she continue such activities and interests. She will be with us for our 50th. . . . Some letters—**Maurice Brandt**, Salisbury, N.C.: "Your class notes are wonderful and it's fine to be able to keep up with our class doings. It was interesting to read about our West Coast classmates you and Frances saw on your trip out there." Thank you, Maurice. . . . **Max** and Catherine **Woythaler** enjoyed a winter cruise and stay at Barbados, Tobago and Trinidad. Good for them! **Larry Bailey** wrote he enjoyed the trip over to the New York Class Dinner and is in good post-operative shape but suffers from a "non-alcoholic" big head. All the best to you, Larry, to get rid of those uncomfortable and painful headaches. . . . You will all be glad to know **Hank Marion** has made a brave recovery from his serious surgery and is improving steadily. When we were at our New York Class Dinner, George and I were allowed to see him for a short time at the Neurological Institute there, and he surely was in tough shape. All the best Hank; stick in there and fight it out. . . . In February, **Harry** and Lucille **Murphy** drove all over the West Coast and liked it. . . . **Wally** and Ardelle **Pike** attended the annual M.I.T. Mexico City Fiesta for a glorious time. They went by the way of New Orleans and returned through the Middle West—we are anxious to see Wally's pictures. . . . **Jerry** and Verta **Coldwell** went through a cold winter in Naples, Fla. . . . **Wayne Bradley**, the successful sponge rubber manufacturer of Moosup, Conn., will dispose of his Forty Acres Inn. He has bought a new place, Moosilauke Inn at Warren, N.H. This is a cute, comfortable place with everything from a bar to a pool to a golf course. Fran and I will try it this summer and maybe some of you, too, will want to give Wayne some business at his new place. . . . Despite continued illness and hospitalizations **Ken Johnson** retains a howling sense of humor. This censored, dignified column does not permit quoting all his letters, but here is his

extremely funny experience with his television set: "The programs are not worth listening to—a waste of time. The usual set requires too frequent repairs. Ours, at least, has not improved my vocabulary. It does have one merit—I get enough exercise, once it is turned on, setting it just right for brightness, sound, etc. A return to my chair (for a full minute), then the set goes on a rampage. Up I get and make an 'adjustment,' return to my chair and repeat, ad infinitum! These episodes repeat until I get fed up and call in the 'expert' repair man. He clarifies the whole situation in jargon no one understands and hands me a bill that compares with one from my physician who sticks his head in my hospital room door, says a 'cheery good morning'—all of which consumes 60 seconds—and sends a big bill for it. There are other advantages in a television set—the difference in opinion between husband and wife as to what program to listen to at any given time. Personally, I feel the wife has the better judgment—so concede defeat and go to bed. Throw a television set out and you could take several vacations—which I am sincerely considering doing." How's that for courage and humor from a guy laid up in a hospital bed?

Herb Anderson has recovered from his recent serious eye surgery so that Alice and he took off in February for a Grace Line cruise to the South American West Coast. I wrote to Gus Gross, '50, in Guayaquil, Ecuador, to meet their ship there and show them around. Fran and I knew Gus when he was here at M.I.T. and later met his charming young wife, Carmela. Gus is governor of his state there. A picture card from Guayaquil signed by all four of them assured us they had a delightful visit together. Later Herb wrote: "While all cruises are an opportunity for good fellowship, I have been taken to task by Alice for my stories. Some will go down as historical or educational gems which seemed to meet with feminine approval by all except Alice." Remembering his repertoire, it is easy to understand Alice's feelings. . . . In the January 4, 1964, issue of the Journal of the American Medical Association, our **Jim Tobey** had an informative story on the three prominent physicians who were members of the Federal Constitutional Convention that assembled in Philadelphia on May 25, 1787, Dr. James McHenry of Maryland, Dr. Hugh Williamson of North Carolina and Dr. James McClurg of Virginia. The first two of these signed the new Constitution on September 17, 1787. Jim must have done a lot of research reading to prepare this well-written piece. . . . **Joe Livermore**, Ridgewood, N.J., wrote: "The Class Dinner in New York was a heart-warming experience as always, and I do hope we can continue this for many years to come." With this, Joe sent a clip from a New Haven paper: "A father-son construction team with a long history at the helm of Dwight Building Company, has severed this association to form a new enterprise here, the Maconi Construction Company. Announcement of the new company was made today along with the disclosure that Richard C. Maconi has

resigned as president of Dwight, a post he has held since 1959. The older member of the team, **G. Vincent Maconi**, formerly served as president of Dwight and recently held the title of honorary board chairman. It was announced that the new company, with headquarters at 1883 Dixwell Avenue, will concern itself with industrial, institutional and commercial building construction. James H. Gilbert, President of C. W. Blakeslee and Sons, Inc., which with Blakeslee family interests owns most of Dwight, said he was 'very sorry' to see Maconi leave the organization. The younger Maconi is president of the new firm while his father serves as secretary-treasurer. Many of the outstanding commercial and institutional structures which are now landmarks in the New Haven area have been built by Dwight under the tenure of the Maconis. The elder Maconi joined Dwight more than 40 years ago and served as its president from 1946 to 1959. Both father and son are graduates of the Massachusetts Institute of Technology. The son obtained his engineering degree in 1944 and served for two years as an engineering officer in the Navy before joining Dwight. He rose to vice-president in 1950, and nine years later succeeded his father as president. Active in both business and civic affairs, he served four years on the board of governors for New Haven College and is currently a member of the Governor's Advisory Committee for the New York World's Fair. His father was associated with a Boston construction firm prior to his coming to New Haven. He became chairman of the board after stepping down as president of Dwight in 1959 and in January of this year retired to an honorary status." I asked Vince about this and in answer, he wrote on the attractive letterhead of the New Maconi Construction Company: "The latter part of November, Richard did what he always wanted to do and that was to start a 100 per cent Maconi Construction Company. He resigned as president of Dwight the middle of November. This company was started shortly after. We still own about one-third of Dwight Company stock. I will help along for a year or two until all is in good running order. We expect a good year, judging from the projects we are now budgeting. Yes, it keeps me busy, but I enjoy it. Marion and I hope to sail for Europe in early fall starting in Copenhagen and working south to Rome. My summer will be free for golf." Best wishes from us all for continued success to Vince and Richard. . . . Mrs. Hope **Holway**, Tulsa, Okla., wrote that she and **Bill** will be at our 50th; and it will be good to see them after this long time.

What makes "1915 The Class Supreme"? One of the many reasons is the Class Dinner, April 24 at the M.I.T. Faculty Club. Despite the recent sad thinning in our ranks, we had a record attendance of 34 including five sons of 1915. Last minute cancellation from **Harry Murphy** and his son robbed us of their delightful company and an even larger attendance. Present were: Gene Eisenberg, '43; Herbert Eisenberg, '52; Bill Sheils, David Hamburg, Gerry Rooney,

Jim Hoey, '43; Larry Bailey, Wayne Bradley, Bill Brackett, Jack Dalton, Reggie Foster, Clive Lacy, Larry Landers, Azel Mack, Archie Morrison, Frank Murphy, Ben Neal, Charlie Norton, Ozzie Osborn, Wally Pike, Chet Runels, Pirate Rooney and his guests, Al Elfner and Al Sampson, Jac Sindler, Ed Sullivan, Speed Swift and his guest Cleet Miller, Elmer Waters, Easty Weaver, Pop Wood, Max Woythaler, Louie Young. Whit Brown was ill at home and we missed him. We all signed and sent a card to him and to Hank Marion with friendly wishes for complete and speedy recoveries. It was a pleasure to welcome this fine bunch of old companions, the "younger" members of the Class—Gene, Herbie, Bill, David, Gerry and Jim Hoey and guests Al Elfner, Hugo Barratta and Cleet Miller. After cocktails the Pirate opened the evening with a stirring "We are Happy" and then called for a rising tribute of silence to our recently deceased men. Next George introduced the guests present. Brief comments were made by Max on the Alumni Fund, by George on reunion plans, by Al on the annual June Class Cocktail Party, by Ben on our 50th Fund; and Jack Dalton, finally, spoke on the devoted, close associations and friendships in our class. In all, it was a very heart-warming evening. Long distance competition created a tight race. The Lowell twins **Reggie Foster** and **Chet Runels** (we couldn't have a dinner without them); the North Shore Triplets, **Archie, Fred Waters** and **Al; Larry Bailey**, Duxbury; **Max**, Framingham; **Louis Young**, retired from his Cape Cod estate at Chatham; **Pop Wood**, retired, from Peterboro, N.H.; **Charlie Norton**, who again walked on the waters of Vineyard Sound to get here from Martha's Vineyard; and then in the really tight competition: **Ozzie Osborn**, Hartford, Conn.; **Wayne Bradley**, Moosup, Conn.; **Speed Swift**, New London, N.H.; and the Winnah, again—**Ben Neal**, Lockport, N.Y. A fine crowd—credit, praise and thanks to them all. After the Faculty Club meeting a number of the fellows came over to our apartment for a pleasant and late visit with Fran and a little cointreau and cognac. Very nice all around.

Sarkis M. Bagdoyan died January 1 at the Brooke Grove Foundation, Olney, Md., after a long illness. Sarkis was born in Turkey and attended Central Turkey College before going to Harvard and then graduating with us in Course I. After working as a structural engineer for the Reading and Pennsylvania Railroads in Philadelphia, he moved to Washington in 1939 and became a structural engineer for the Bureau of Yards and Docks. From 1945 to 1955 he lectured in civil engineering at George Washington University and the University of Virginia Extension School in Arlington. Sarkis' widow, Lydia A., two daughters and one grandchild survive him. In answer to our letter, Mrs. Bagdoyan wrote: "My family and I are most grateful for your kind words of sympathy and understanding. Thank you for your thoughtfulness. Sarkis was very proud of his connection with M.I.T. and considered it a great privilege to belong to the Class of 1915." . . . **Frank**

J. Herlihy died April 4 at Cape Cod Hospital, Hyannis, Mass. In 1962, Frank retired as assistant superintendent of Boston Schools and moved to the Cape, where he had spent many summers as an instructor at Hyannis State Teachers College. After M.I.T., Frank continued his studies at Boston College, Boston University and in 1928 received his master's degree from Harvard. For many years he taught in local high schools and for 22 years had been a principal in Boston schools. He was also active as an athletic coach in Boston and Lawrence schools. His widow, Anne F., and two sons, Francis B., '42, and David survive him. . . . **Edward E. (Phoebe) Proctor** died March 28 in Salisbury, N.C. He was founder and chairman of the board of Proctor Chemical Company, Inc., Salisbury. . . . **M. Warren Cowles** died April 25, in Ridgewood, N.J., after a long illness. Our sympathies go out to the widows and families of all these men, and for the class, I have written to their families. In answer, here are two warm, friendly letters, one from **Mary Scully**: "My family and I want to thank the Class of 1915 for their very thoughtful and beautiful gift of the Gold Benediction Censer, donated in memory of my dear husband and the Spiritual Bouquet of Masses offered for him. Father Harry Dooley, Chaplain of the M.I.T. Catholic Club, has accepted the Benediction Censer with great pleasure, and it will be used in the Technology Chapel. Frank had become very friendly with Father Dooley, as he was interested in organizing a Technology Catholic Alumni group. You can imagine how proud Frank would have been with that gift given in his memory. Please do thank the class for me and all my family and extend to them our great appreciation of their thoughtfulness in our great sorrow." . . . From **Ida Eisenberg**: "This is as hard a letter for me to write as it was for you to write me. Sam loved the 1915 Class. I have always admired the 1915 Class spirit and the devotion among all the members. I am sure no other class has been so close. I shall always treasure your comforting letter. Sam had many interests, but I know the one with you all was the most pleasurable." It is very touching to have these letters. To all you classmates and your families, a healthy and happy summer. Plan for our 50th.—**Azel W. Mack**, Secretary, 100 Memorial Drive, Cambridge 42, Mass.

'16

The trend is up—that was the prediction at an early date (May 11) for the attendance at the 48th Reunion, June 12, 13 and 14 at Chatham Bars Inn on the Cape. For at that time our good president, **Ralph Fletcher**, had sent out return postcards with details for the coming reunion get-together, and our hard-working reunion-detail-arranging honorary class member, **Bob O'Brien**, had sent us unprocessed data on "how many and who are coming so far." A full account of the reunion will of course be given in the No-

vement issue.

Steve Brophy, on his April 17 return from his prize-winning 30-day cruise to South America, reported to Ralph: "We had a great trip. We hit the Brazilian revolution right on the nose, with three days in Rio de Janeiro just before the uprising and two days the following week, after we had visited Buenos Aires. It was quite a show and a move in the right direction, but they have a long way to go in Brazil before the country will be a stable democracy."

In mid-April we had word from the **Bob Wilsons** in Scottsdale, Ariz., where they were taking a respite before heading back to Washington. They had covered some 2,900 miles by car since leaving Mobile. In reference to scenic views generally, Pearl writes: "There is nothing like our Eastern seaboard countrysides for restful and beautiful views. Nevertheless, we are glad, as we get older, to get to where spring comes a little earlier. We crossed through this spectacular area (Salt River Canyon, Ariz.) on our way here."

Bill Leach has a reunion conflict—his 50th at the University of Chicago comes at the same time. He writes: "Pearl and Bob Wilson stopped over in Austin the last week in March just after we returned from our trip and were here for three days. We had a good visit. Pearl looks and feels much better and Bob does also. He has his 50th coming up at Wooster. When I get things cleaned up somewhat, I will write you about our trip. It was most interesting but the Pacific is not peaceful. It was rough, and I mean rough." A trip takes us to San Antonio for two days at the end of May, and we expect to see Bill and Helen Leach while there.

In reference to the reunion, **Rudi Gruber** wrote Ralph: "I am terribly sorry at being unable to join my Classmates at the Cape, but I shall be in Vienna, just at the time of the reunion, which I know will be a great success!" . . . Back in April **Francis Stern**, after a pleasant winter in Palm Springs, said his golf was roughly in shape for the reunion "but inasmuch as fishing starts on the 18th of this month I have just invested in a can of moth proofing material for my clubs until June." In May, Francis was elected Chairman of the Eastern Regional Board of Junior Achievement, and a member of the National Executive Committee.

We hear from **Art Caldwell** in New York every once in a while and he usually says that he hasn't any special news. He continues to help keep the operations of the financial world in order, however, if we are any judge of things!

Blythe Stason, as Administrator of the American Bar Association in Chicago, speaks of an uneventful year but with participation in two "interesting and possibly constructive" international conferences for the promotion of world peace through law. "One conference was held in Rome and the other in Athens. Mostly I find busy days, nights, and Sundays riding herd on the American Bar Association Legal Research program, trying to do my bit to improve the law, administration of justice, and the legal profession. Our scientific brethren spend billions on scientific, medical, and technological re-

search. So the law must at least spend a few modest millions to keep the legal structure abreast of the times. That is my milieu." Our dictionary gives two meanings for "milieu"; the first is "environment, setting," and the second: "In roulette, a bet placed at the bottom of the middle vertical column, taking numbers 13 to 24. It pays 2 to 1." We bet over 10 to 1 the first definition applies!

The **Walt Bingers** spent six weeks this past spring in Europe, mostly in Spain and Portugal, largely to visit great cathedrals and "other things of antiquity." But before returning they flew to Rome, motored through the hills of Florence, and to top it off, Walt was able to accept an invitation from Count Enrico Luling Buschetti, Master of the Milan Fox Hunt, to ride "with their very fast hunt." Imagine Walt's enthusiasm as he writes: "There were nearly 60 riders and about 30 men in pink. I had no idea that anything so elaborate existed in Italy. The MFH mounted me on one of his beautiful thoroughbreds and I had a great day." Last year it was Ireland, this year Italy—where will Walt at age ride next? He closes: "While I ran into a number of people, I met no M.I.T. men. It is astonishing how remote the Peninsula still is compared to the other countries of Western Europe."

In April we had word from **Freeman Clarkson** on Anna Maria Island just off the west coast of Florida—the same island, near Sarasota and **Emory Kemp**, where the **Will Wyldes** go every spring. He says: "At this elevation (3.14 feet) [more accurately, wasn't it really 3.1416?—Sec.] and latitude we find swimming and sunsets superb, with the sound of the surf most conducive to complete relaxation. . . . Son David is in Woodstock, N.Y., educating Ulster County in the new math and will collaborate on a new textbook in Palo Alto this summer. Daughter Mary (Mrs. Frank P.) Ballantyne brought her two youngest daughters from California for an exciting visit here during their spring vacation. Saw **Tom Atchison** in Princeton, N.J., on my way down last December and **Harold Burkhardt** spent a week here last month. Talking over old times was much enjoyed on these occasions."

Everett Johnson, in Monroe, La., writes that when he looked at the 47th Reunion picture, this "was the first time almost since graduation I've known what my old pals look like. Hope something like this will follow the 50th in 1966." He says that after covering the whole state for over 30 years, he and his wife have greatly enjoyed home life since retirement in 1959, and are fortunate in being able "to do a lot of community and church work." He says it also helps to have their daughter and two grandchildren close by.

From Charlottesville, Va., **Wes Blank** sends something that we quote directly, for this is without doubt a gem of "blank verse." Here it is: "Harold, when one finds his spring nearly spent, And his urge to get-up-and-go to his reunion badly bent; Moreover on horse-back no longer he gallops, Nor hazard to ski, like Fletcher, on the Alps; While grandchildren young, numerous and fair, Get into your hair and confusion precludes the

New York fair; What possible news can one have to offer, To his classmates—it's not worth a copper; But it is not a final conclusion on which to bet; That I'll not still to the Reunion get!" Sounds like 50/50 to us!

The **Cy Guethings** had a host of travel plans way back early in April—West Virginia and Virginia in April, Cape Cod and the Reunion in June, Georgian Bay from late June until mid-August, Oyster Harbors Club the last part of August and over Labor Day. Even then, Cy was talking about digging a few "cherrystones" on the Cape if he could only find somebody to crack them.

Harry Smith says he has been fully retired since last August. He originally retired from the Underwriters' Laboratories in 1957, but went back in 1959 to help part-time for four years on preparing standards covering electrical equipment until the company moved impossibly far away on Long Island. As for local activities in Chatham, N.J., Harry still works on the Shade Tree Commission and hints he may drive a station-wagon one afternoon a week for the Madison-Chatham Chapter of the Red Cross.

Three recent postcards from overseas testify to the travelingness of '16ers. One from **Val Ellicott** in Greece says: "Please tell the M.I.T. '16ers that this trip will run on after the reunion, I am sorry to say. I hope all of you will have a grand time." A second card from **Bob Burnap** in Copenhagen reads: "Arrived here a few days ago by way of Rome, Florence, Venice, Milan, Lucerne, Frankfurt, the Rhine River, Cologne and Hamburg. A beautiful city, Copenhagen, liberally laid out with parks and wide streets. Talked to your professor-doctor friend [Dr. Anders Hald, University of Copenhagen] this morning and gave him your message." And the third card from **Peb Stone**, to whom we directed a bon voyage card to be opened over the longitude line 69 degrees west of Greenwich, asserts: "We were up so high we couldn't see the meridian lines on the ocean but we came as close to 69 degrees as we could. . . . Only one day at Naples for Capri, and three days in Rome just finished (astounding place). Florence tomorrow." And we have a non-overseas card from the **Harold Milles** in Arizona, showing desert flowers no less, and sent en route to visit their two daughters in the San Francisco region.

Merrill Pratt writes on a neat letterhead that reads: "Continental Gin Company, Prattville, Ala.; M. E. Pratt, Chairman" and sends this message: "I have spent all of my life here in Alabama, or the South, with the exception of two short spans—one at M.I.T., and one in the U. S. Army during World War I. This is a wonderful part of the country to live in, and if any of you are down this way, please get in touch with me so I can show you around."

George Maverick is about to retire again, this time in Charlottesville, Va. (because of an age-70 limitation), from the faculty of the Graduate School of Business Administration of the University of Virginia which he helped to organize eight years ago upon his early retirement from Standard Oil of New Jersey. He notes:

"We will miss the association with young people that is part of teaching in a small close knit group. We have been so lucky to have had the opportunity." He adds: "We haven't been back to Europe or India since we spent four years there right after World War I. Mexico is so near to our friends and relatives in Texas that we've been there many times. Now we're talking of some periods of calm in England and Greece, but who knows? Mandy and Charles and two very black dogs can't be left at Shepherds Hills Farm without baby sitters. So we'll wait until after the retirement when all the tourists are home to decide." And another thought: "P.S. Weren't we lucky to start our working careers in good old 1916—instead of now!"

The pictures mounted on the reunion bulletin board included three from **Lewis Dow**, two showing their log cabin with a Florida room on lake frontage in Odessa about 18 miles north of Tampa, and the third showing their summer place on Pounding Mill Road, Shooting Creek, N.C., 3,300 feet above sea level. Lewis worked for the city of St. Petersburg for 35 years until he retired in 1960. Now in retirement, he and his wife are enjoying their two places and keep young with the younger generations that include three grandsons and two granddaughters. The oldest grandson is studying for an M.D. degree. It all sounds very comfortable as he is "sitting here this morning looking toward the East, across Rock Lake with the cypress and pine trees and shrubbery along and near the shore." This year they will be in Shooting Creek (see your atlas) in May and again during August until after Labor Day.

The **Joel Connollys** have now taken up permanent residence in Tucson, Ariz. (Box 17132). Joel wrote late in April: "We have just received our furniture which has been stored in Chicago for 12 years and we are busy cleaning things and putting them away." In their unique private publication, *The Southwest News*, issued now and then, Joel, as publisher, has the following interesting item: "On January 18, 1964, a severe earthquake shook central Taiwan (Formosa). Many buildings were reportedly destroyed by the tremor and by the big fire in Chiayi City which followed the earthquake. A boy in Taipei wrote to us in part as follows: 'People all over the island untied their money bags and sent money and clothes to help those poor disastrous men.' The publisher felt some concern about the safety of our friends and about the possibility of damage to the million gallon elevated steel water tank which he was instrumental in erecting for the Kaohsiung water works. We rejoice that none of our friends were hurt and the superintendent of the water works has recently assured us that it was not damaged in any way. The supports of this high-level tank were designed and built extra strong because of the frequency of earthquakes in Formosa." What safety factor, Joel?

The March 10 New York Times picture and clipping we sent to **Mark Lemon** in Dallas proved to him, he says, "how small the world is," for Mark's wife

recently had luncheon with one of the ladies shown in the picture with **Steve Brophy**! Mark is still practicing architecture, is now confining his practice to the consulting phase, but has gotten to the stage where he believes it is about time to retire. He says: "We have been consulting architects for various educational institutions such as The University of Texas, Southern Methodist University, Hendrix College in Arkansas, and the Dallas School Board which has been frantically trying to provide school rooms for the city which is growing so fantastically. So far the City of Dallas has voted, in round numbers, about \$150,000,000 for school construction since 1946." He notes: "**Charlie Cellarius** of our class was in Dallas attending the Church Guild's National Convention and I had the pleasure of having him as my luncheon guest, followed by a personally conducted tour of some of the architectural features of Dallas that were of particular interest to him."

Nat Warshaw tells of his third February in Florida, relaxing in the sun, and swimming his "two miles every day which allowed me to eat without gaining. I even took up scuba diving and discovered a new world under water." That makes two scubas—**Peb Stone** and Nat; maybe there are more! Nat says further: "Driving down we 'bagged' two deer with the car. Smashed the car but we escaped injuries. And a few weeks ago someone 'bagged' me—in the rear—but am o.k. except the car is badly bent. Guess Ralph is right—flying is safer than driving." Nat has not retired yet for he still feels he can contribute something "and from where I sit, retirement is really for the 'birds'." And finally: "Had a telephone chat the other day with **Tom McSweeney** and a letter from **Mark Aronson** in Philadelphia. Both are fine."

Ed Hanford, who continues active as an industrial consultant, tells of a delectable dish that '16ers should seek out. One of the engineers with him in Washington back in November was born in Peking and had fought with Chiang's army when based in Chunking. Ed says he studied engineering "by the light of a rag in a dish of lard so at least someone had it tougher than we did at M.I.T." And one evening he took Ed to a "mandarin" restaurant where they serve "Peking" food as distinguished from "Cantonese" food and quite different from what we call Chinese food. Says Ed: "We had a lot of dishes I don't remember but the outstanding dish was 'zero-zero' soup, so if you ever find a Pekinese restaurant, order this dish—it is delicious!" Ed's proudest item is his 14-year-old daughter's achievement—winning the American Legion Award when she graduated from junior high school.

As reported in the *Virginian-Pilot*, **Clint Carpenter**, who is president of the Carpenter Construction Company of Norfolk, "has been elected to the board of directors of the Associated General Contractors of America. He will represent Virginia on the board of the 7,800-member national association." With the clipping we have a good picture of Clint.

We must report a most delightful visit

with **Moose** and **Alexandra Jewett** in Buffalo the first week of May while on a convention trip. We had a wonderful luncheon at their club, visited the Albright-Knox Art Gallery and especially the new addition which Moose had such a large hand in. And may we be permitted to say that, even with our quite small sample of observations, it was evident from the way people spoke to the Jewetts that they are truly distinguished citizens of Buffalo.

As always we are indebted to **Jim Evans** for chunks of news. **Stew Rowlett** explains to Jim that a trip to St. Louis to visit their son, and visitors to Clearwater, spoil their chances to be at the reunion this year. The **Don Websters** (actually Uncle Don and Aunt Nell) in a card to Uncle Jim and Aunt Jessie send this message: "We are a couple of tropical bums flitting from island to island (9 in all) in the Caribbean." And **Herb Mendelson** proclaims loudly from India "the delicacy and sheer simplicity" of the Taj Mahal.

Harold Gray, writing on April 3 from Fayetteville, N.Y., "the opening day for trout fishing in New York and Limestone Creek," notes that the principal activity last winter was a wide-ranging trip through South America. Leaving in a snowstorm for Colombia, they landed for a few minutes at the Panama Airport but were not allowed to do their planned sightseeing because of the historic flare-up there. They hopped down the west coast of South America with a few days at each of the principal cities, then east through the Chilean-Argentine lakes, where Harold was able to get in one day of rainbow trout fishing at Bariloche, the area famous for rainbows. Their furthest point south in Chile was as far south of the equator as their Syracuse is north of the equator. For general guidance to '16ers, he notes: "From a tourist standpoint, I found the west coast of South America more interesting than the big cities of the east coast. Generally the west coast countries are more primitive than the east ones. I was particularly interested in the Inca civilization." . . . **Russ Lowe** never told us before, but writing from Fort Pierce, Fla., he now says he was hospitalized last July "with a combination of abdominal and chest infections that culminated in a severe case of heart failure. The road back has been slow and a bit rough but I am happy to say I am making the grade." Russ says he recently asked his doctor about fishing, but "when I admitted I could not cut the line if I tied onto a really big one, he said: 'Nothing doing!'" All good wishes for a full recovery, Russ, and fishing soon!

Bill Barrett couldn't make the reunion on the Cape because his organization, The American Craftsmen Council, was having the First World Congress of Craftsmen in New York during the two weeks, June 9-19, and as host and speaker he had to stay in New York City for the occasion. We were sorry too that Stew Rowlett couldn't take on the registration job at the reunion, but expect he will be back at it for the next two reunions at least. And we know we will be able to report next fall that those who didn't come will never be able to appreciate what they

missed when Irv and Kay McDaniel showed some of their travel slides!

This closes the column for the current season. Many thanks to the many who have responded to requests for news-or-philosophy—32 replies in the last two months, how about that!—for this is what makes the column full and perhaps interesting. For those coming to the World's Fair, here's a message from Jim Evans: "Mark these dates on your calendar—Sept. 10, Oct. 8, and Nov. 5, Thursdays following the first Monday of the month. Why? Because these are the dates for the monthly 1916 Class luncheons at the Chemists' Club in New York, at 52 East 41 Street." Last minute letters from **Charlie Glann** in Oswego, N.Y., and **Berthoud Boulton** in St. Louis will be reported in the November issue. And finally, the best wishes of your Class officers for a good summer and just the kind of vacation you have been waiting for.—**Harold F. Dodge**, Secretary, 96 Briarcliff Road, Mountain Lakes, N. J.

'17

By the time you receive this issue of *The Technology Review*, Alumni Day in June will be a matter of history, and many of you will either be on vacation or making plans for the summer and fall. Class notes will also take a vacation until the November issue of *The Review*. For those who have material for the class notes, please remember that notes for the November issue must be in the hands of the secretary by Labor Day.

Two of our classmates, **Linwood I. Noyes** of Ironwood, Mich., and **Horatio W. Maxfield**, of Portland, Maine, have finished their earthly careers. Lin Noyes died unexpectedly in his apartment at the Talbot House, Delray Beach, Fla., of a heart attack on April 20. He had spent the latter part of the winter at Delray Beach. He suffered a heart attack seven weeks previously, but was permitted to return to his apartment to convalesce about a week before his death. He had appeared to be recovering satisfactorily. Lin had long suffered from a heart ailment and diabetes and was stricken by a serious heart attack while vacationing in Hot Springs, Ark., in February, 1962, but continued to be active in his work. He was born on December 9, 1894. He attended the University of Wisconsin in 1912-1913 and was graduated from our class in 1917 with a degree in architectural engineering. He was employed by the national construction firm of Stone and Webster prior to joining the American Expeditionary Forces, where he served as first lieutenant C.A.C. and as aerial observer in the Signal Corps. While in France he was severely wounded in the legs by a machine gun explosion. Soon after his return from service he returned to Ironwood to publish the *Ironwood Daily Globe*, founded in 1919 by his father, Frank E. Noyes. Prominent in newspaper circles for many years, Lin was the first publisher of a small non-metropolitan daily to be elected president of the American Newspaper Pub-

lishers Association, which he headed from 1943 to 1945. The organization embraces 80 per cent of the newspapers in the U.S.A. In 1951, at a meeting of the Inland Daily Press Association, he was presented with the annual Minnesota Award for distinguished service in journalism by the University of Minnesota. Irving McDaniel, '16, who was Lin's roommate at M.I.T., writes that among other newspaper honors, Lin had an issue of the G.I. Stars and Stripes dedicated to him in World War II; also that Knox, Secretary of the Navy, wanted Lin as assistant secretary just before World War II. Aside from his many newspaper interests, Lin was active in many civic and fraternal affairs. The following editorial appeared in the Marshfield, Wis., *News-Herald* on April 22, written by the Editor Howard A. Quirt who was co-owner with Lin Noyes: "Linwood Noyes had to be a good newspaperman to achieve the unsolicited honors which his colleagues in the profession and the industry heaped upon him. And he helped to make others become better newspapermen by his acceptance of and his devotion to the responsibilities imposed by their confidence in his ability and integrity. . . . But Linwood Noyes was much more than a good newspaperman. He was a scholar, he was a gentleman, he was a devoted family man, and he was, in all that the word implies, a friend. To all who knew him, the memory of Linwood Noyes and the manner in which he defied adversities which would have crushed most men will be a continuing inspiration. . . . Personal tragedy haunted him through a great portion of his life, but it did not blind him to the trials of others. The employee who encountered illness or misfortune was sure to hear from him and to receive assurance of his sympathy and his desire to be helpful. The friend who had need of his aid or counsel had but to voice that need, and it was fulfilled. . . . Linwood Noyes would not have asked that these words be written to mark his passing or to note the contribution he made to his times. But it seems to us that those who have shared in the product of his lifetime without, in many cases, having been aware of his existence, will be pleased to know what manner of man it was who served them. . . . He was a man in whom strength and gentleness, ability and compassion, were admirably blended. He was a man who gave more than he received. He was a man whose passing is deeply mourned."

Horatio Maxfield was at M.I.T. in 1916-1917 in Course III. He died in September, 1963. He previously attended the University of Maine. While at M.I.T., he specialized in air conditioning and steam boilers. He was an ensign in the Navy for 13 months in World War I. His business life was in sales engineering concerned with air conditioning and boilers. . . . **Ralph Ross**, who is one of three commissioners responsible for the construction, maintenance, and operation of Vermont's highways, drove into Boston in mid-April to confer with Massachusetts highway experts and authorities. He reported the roads in Vermont in excellent shape. This activity is only one of the many civic duties reported previously

in the class notes which keep Ralph out of mischief. Ralph and his wife are fast approaching the record of 20 grandchildren. . . . **Ray Brooks** and wife enjoyed a 26-day Mediterranean cruise this spring. . . . **Dix Proctor** took off on May 14 for a two-month cruise. . . . **Bill Sullivan** has returned from his annual winter in the warm southwest. . . . **Ken Richmond** is still working part-time at Abraham-Strauss department store in Brooklyn and is still in the running with 17 grandchildren. . . . The Holy Cross Alumni Bulletin announced in February the retirement of Professor **Raymond E. McDonald**, Professor of Physics and a member of the Physics Department faculty since 1919. He is known to thousands of Holy Cross alumni for his ability and interest in teaching.

In casting about for a theme for next season's class notes, there came to hand an article in the April *Technology Review*, page 11 about the re-naming of the M.I.T. School of Management as the "Alfred P. Sloan School of Management." In the article Mr. Sloan "recalled the genesis of his interest in the school." He said: "As a part of one of our evening get-togethers, (at the 50th reunion of the Class of 1895) I suggested that each man who wished to do so make a few remarks about his experiences in life—his accomplishments, his disappointments, what he did to capitalize on what he had learned at M.I.T., and what he would do differently if he had to do the job over again." Members of our class have much to offer, not only to members of the class, but to others who read our column. You will receive a memorandum before September on which you can write 100-300 words answering the questions which Mr. Sloan posed for his classmates. Replies should be interesting and inspirational. Thoughts of this kind are much more useful during the lifetime of the individual than any obituary. Be thinking about the subject between now and the time when you will receive our memorandum, and don't be too bashful to give others the benefit of nearly 50 years of experience.—**W. I. McNeill**, Secretary, 107 Wood Pond Road, West Hartford, Conn. 06107; **C. D. Proctor**, Assistant Secretary, P.O. Box 336, Lincoln Park, N.J. 07035.

'18

The last part of a man's life, like grapes allowed to ripen on the vine, should validate and give substance to the living past. Gathering to himself the richness and color that come only toward the end of the ripening process, **Hall Nichols** recently retired from 18 years service as an elected member of the Wellesley Recreation Commission. His retirement two years ago as director of the State Division of Building Construction for the Commonwealth of Massachusetts was chronicled in this column. Commenting on the current situation, the Wellesley local paper says: "If any single person can be said to be responsible for the present fine recreation program in the

town of Wellesley, it certainly is Hall Nichols. He has played the dominant role, not only in the development of fine recreation facilities which the citizens of Wellesley enjoy, but also in the growth of a successful recreation program from nothing to one in which almost every family in Wellesley participates in some way . . . His activities in the promotion of recreation have not been confined to Wellesley, as he was frequently called on for advice and counsel by other communities which were in the process of organizing recreation programs . . . Mr. Nichols was a town meeting member for many years, precinct chairman of the Community Fund Drive, and in 1944 head of the Wellesley Community Fund Drive. He served as past president of the Hospital, Unitarian Church Laymen's League, and director of the Wellesley Friendly Aid Association."

An old Roman named Ovid admonished men to pluck the grapes hanging from the well-stocked vines. Similarly, **Frederick H. Norton**, head of the Ceramics Division at M.I.T., has both stocked the vines of time and is now garnering the harvest. Last winter he was chosen by the Pittsburgh Section of the American Ceramic Society to receive the 17th Albert Bleininger Memorial Medal and Scroll "for distinguished achievement in the field of ceramics." This award is presented annually by the Pittsburgh section of the American Ceramic Society. The Clay Products News and Ceramic Record of Toronto, Ontario, says: "Dr. Norton is widely known and highly recognized by the entire ceramic industry. The major developments in research and technology in the field of ceramics since World War I have been greatly influenced by the work of Norton and his students. His work in the field of refractory technology includes studies of high temperature creep, thermal conductivity, resistance to thermal stress, and numerous other phases of this basic industry. His work in the field of differential thermal analysis, rheology of clay-water systems and the mechanisms of iron exchange in clay-water systems has been outstanding. His research activities include studies in the development of colors in ceramics, properties of glasses, creep of metals and numerous others. His works have been widely published in over 100 technical papers, and he is the author of several widely used textbooks in the field of refractories and ceramics. After graduation he immediately became associated with the National Advisory Committee for Aeronautics (now NASA) where he served, first, as assistant physicist and then as chief physicist. In 1922 he was appointed director of research for the Babcock and Wilcox Company, which was really the beginning of his intense interest in the field of ceramics. In 1924, Norton returned to M.I.T. to accept an appointment in teaching and research in the Department of Metallurgy. From that time to the present, he has devoted his boundless energy to teaching and research. He rose to full professorship and then head of the ceramics division. Dr. Norton is a fellow of the American Ceramic Society, a fellow of the Physical

Society, and an honorary member of the British Ceramic Society." Official presentation of the Albert Victor Bleininger Memorial Medal and Scroll was made on March 20 at a banquet honoring him at the Pittsburgh Athletic Association.

Few men can squeeze the ripened grapes of time with more joy than **John R. Poteat**. As president of the Blue Ridge Assembly, on February 11, he addressed the 75th annual meeting of the Winston-Salem and Forsyth County YMCA. The Blue Ridge Assembly near Black Mountain is a center for conferences and training for the YMCAs of the 10 Southern states. John first entered YMCA work during World War I when he worked with recruits at Fort Oglethorpe, Ga. He established a school to teach recruits of foreign extraction how to respond to commands, conducting his classes by pantomime. For 32 years he was associated with the General Electric Company, finally becoming general manager of the electric range division. Beside his YMCA activity he is a former chairman of the Brevard Music Center board, vice-president of the Tryon Mutual Concert Association and a board member of Tryon's St. Luke's Hospital. . . . Archdeacon **George Ekwall**, our chemist turned clergyman, has employed the ripened grape in literal ecclesiastical ways beyond the metaphor intended here. The substance of his past is there too, as the women of St. Mary's Church in Newton Lower Falls can testify after hearing him speak on April 7 to the topic, "The Work of the Archdeaconry." The gist of his remarks has not reached these woods. Perhaps, with a word of encouragement for all who look back at missed opportunities and unfulfilled ambitions, he took a verse from Leviticus 19: "And thou shalt not glean thy vineyard, neither shalt thou gather every grape of thy vineyard; thou shalt leave them for the poor and stranger." Before becoming an archdeacon, George was rector of Christ Church in Waltham for 30 years. So let us all cherish our golden years, for they are full of satisfactions for those who gave substance to the living past. Age gives tone to violins, quality to wine, and a new song to those who have found self-fulfillment.—**F. Alexander Magoun**, Secretary, Jaffrey, N.H.

'20

Regretfully, I must report belated news of the deaths of several good and valued classmates. **Richard H. Goldsmith** died nearly three years ago in San Mateo, Calif. . . . **Philip B. Bucky** died nearly seven years ago. He was connected with Columbia University in New York. . . . **Wilbur H. Freeman** of Winthrop, Mass., died nearly six months ago. The reason these and other out-of-date reports come to light is usually through Alumni Fund activities. I am sorry not to have further details.

The Fund may also be credited with providing news of the whereabouts of two of our classmates in the Orient. Dr.

Yu L. Yeh is in Hong Kong, address, 16 Stanley Beach Road; and **Wen S. Lu** is in Kee Lung, Taiwan, address, P.O. Box 56. . . . **Ros Nebolsine**, whom we hope will show up at our 45th Reunion next year, is with the Hydrotechnic Corporation, 505 Park Avenue, New York City. . . . **Ralph Larsen** has moved from Newton, Mass., to Wilton, N.H. . . . **Charles Lawson** was last heard from at the Royal Palm Club, Naples, Fla. Whether that is a permanent or winter address, we do not know. He previously lived in Hartsdale, N.Y. . . . **Ray Reese** was recently awarded the Henry L. Kennedy Award by the American Concrete Institute "for outstanding leadership in the extensive and exacting revision of the ACI Building Code." Ray, who is principal of Raymond C. Reese Associates, Toledo, Ohio, is completing seven years of service as chairman of the Standard Building Code Committee. He has served the ACI as president in 1962, following terms as vice-president and member of the board of directors. His authorship of textbooks and technical papers in this field has been previously reported in these notes. In addition to heading his own firm, he has been a consultant to the Hausman Steel Company for over 30 years and has also lectured on structural subjects at the University of Toledo.

Homer and **Vera Howes** visited Boston in mid-May, for Homer to attend a meeting of the M.I.T. Library Visiting Committee. Your secretary and his Amy, unfortunately, missed a visit with the Howes because they (the **Bugbees**) were off on a junket to England, Holland, and Spain, arriving home only just in time to make Alumni Day, news of which will hopefully appear in the first fall issue of *The Review*.—**Harold Bugbee**, Secretary, 21 Everell Road, Winchester, Mass.

'21

Hope you enjoyed Alumni Day with the Class of '21 and our friends in neighboring classes. In prospect, at this early writing, is the highly enjoyable day we have come to anticipate as a welcome vacation at the Institute in late spring. As usual, you will have to wait until the reappearance of this column in the next issue of *The Review* in November to learn what took place at Technology on June 15 if you were not able to be among those present at Alumni Day this year. Early next fall, the Fifth Alumni Officers' Conference will take place at M.I.T. and we expect that the Class of '21 will again be well represented at this popular and most instructive weekend, September 11 and 12. From September 30 to October 2, Technology will be host to geologists, geochemists, meteorologists and oceanographers from all over the world at a scientific conference marking the dedication of the 20-story Center for Earth Sciences on the Cambridge campus. Looking even further ahead, we can see a top-notch 45th Reunion looming up in 1966 from June 9 to 12 and concluding at Cambridge on June 13 for that year's

Alumni Day. Be sure to reserve those dates on your calendar. Watch this column and your mail for the committee's announcements of details. . . . Looking back over the years, we note the entries for 25 years ago in the "Institute Yester-years," published in the May issue of *The Review*: "Faculty promotions (in that year of 1929) included: To Professor, **Victor O. Homerberg** in the Department of Metallurgy and **Manuel S. Vallarta** in the Department of Physics." . . . The "Duxbury (Mass.) Clipper" for January 16, 1964, took a much deeper look into the crystal ball and came up with four pictures of as many current Duxbury residents, taken about 1920 in the vicinity of the then Deke house adjoining the dorms around the President's House on campus in Cambridge. An accompanying article, entitled "The Four Horsemen are Together Again," relates to Ed Ryer '20, Roger McNear '20, Jack Kellar '22, now residents of Washington Street, and our own **Mich Bawden** of St. George Street, Duxbury. Roger, Jack and Mich had been roommates and fraternity brothers at Exeter and stayed together at Technology, where they were joined by Ed in Delta Kappa Epsilon. All were active in student affairs. Among dozens of other activities, Mich is cited as captain of the track team and president of the Class of '21 in our junior year. Says the editor: "We have been after these photographs for a long time. Still the best of friends are the Four Horsemen, who came to Duxbury in this order: Delamater, Handsome Jack, Mich and Snoop. They are all great guys who are enjoying life as they look back on distinguished careers." Our personal thanks are extended to John R. Taft, '44, Chief Test Engineer of Bethlehem Steel, for sending in the interesting article.

Arthur A. Turner, who was recently promoted to vice-president of the Carborundum Company, has reported a new home address abroad, and we await an early explanation of his current activities. In the meanwhile, mail for Art can be addressed to 2 Derwent Place, 57 Cromwell Road, London S.W. 7, England. . . . **J. McKay Spears** has a new home address in the Washington, D.C., area at 6825 Cloisters Drive, McLean, Va. . . . **Oliver H. Coolidge** has moved from Bedford Hills, N.Y., to what sounds like a retirement home at Center Sandwich, N.H. . . . A major move has been undertaken by **Robert E. Manley**, who has left Yonkers, N.Y., to become a resident of Charlottesville, Va., where he can be reached via R.F.D. #6, Box 37. . . . Lieutenant Colonel **William D. Morrison** gives a home address at 69 Star Lake Drive, Pensacola, Fla. . . . Three of the Florida "commuters" report a seasonal return to the north country for the summer. **George** and **Muriel Owens** are at their home in Islip, N.Y., with P.O. Box 93 to be used for mail. . . . **George** and **Anne Schnitzler** are back at 10 Short Street, Brookline, Mass., 02146. . . . **Robert** and **Bertha Cook** have traveled up to 326 East Lake Road, Canandaigua, N.Y. Hope you are back to normal, Bob, after last winter's surgery.

The Portland, Maine, "Sunday Telegram" ran a long feature article, illus-

trated with pictures of **Dave Woodbury** at his typewriter, in his basement workshop and with India at the famous corner fireplace at their new home on Shore Road in Ogunquit. Says the article, in part: "Author, inventor, lecturer, dramatist, consultant, engineer, teacher, husband, father—and rugged individualist. That's David O. Woodbury, a man of many sides and accomplishments, who gives the impression of someone running for a bus but unconcerned with its destination. He takes great pride in what he does, whether it's writing, inventing or expressing his political views in a weekly column for the *Kennebunk* newspaper. His works include 16 books of scientific interpretation, plus his recently published first novel, 'Five Days to Oblivion.' When he isn't writing, he usually can be found in his cellar workshop, where his inventions take shape. He and his wife, India, live within a stone's throw of the Ogunquit Museum of Art. Their modern and highly livable home has many paintings by his father, Charles H. Woodbury, (M.I.T. '86), a famous marine artist, and his mother, Maria Oakes Woodbury. The residence has a commanding view of Perkins Cove and the Atlantic. Its setting is enhanced by Mrs. Woodbury's bent for gardening." The oft-repeated coincidence happened again. Right after receipt of the foregoing article from *The Review* office came the following welcome letter from Dave, who reports: "Since you are by far the most friendly editor I know, it is only reasonable for me to send you further descriptions of my lonely doings out here on the easterly corner of Ogunquit. A good deal of my preoccupation last winter was a thorough review of the numerous old-fashioned methods of removing snow and a consequent improvement in some of them. The first idea was to affix a wide blade of wood to a small freight dolly and wheel the snow off. This works fine up to about three inches of snow, but even when there is more it clears faster than shoveling. Number Two has been the real triumph, however. This is an attachment for a common snowshovel which makes it possible to handle any thickness of snow without bending over. One can shovel all day with it and not get tired. The exact nature of the attachment is classified, since I am investigating the possibility of getting a patent. It is designed especially for cardiacs, of which I am fortunately not one.

"Invention number three for winter use is a stick with a small steel nail puller at its end. It was devised for ripping up an icy coating that results from snow being crushed solid by driving over it. It beats the conventional ice scraper because the peculiar angle of the claw gets under the ice and lifts it. No. 4 is a snub-nosed wooden plow that attaches to a car's rear bumper. By backing out, one plows a car-wide avenue, down to pavement. A few passes do the whole job. I have also started patent application for my "Yank, The Nail Puller," the final embodiment of an idea of some years standing. It is simply a split metal wedge which one pushes under the hammer, pumping the latter up the incline of the

wedge until the nail is out without being bent. My old company, Creative Research in California, seems likely to market it. Painted red, white and blue with the name "YANK" in large letters, it ought to sell for about a buck in hardware stores. I can't help hearing groans from my various former professors, who worked so hard to drive some bits of engineering knowledge into me, only to find that I have slumped into gadgetry!

"Thanks to something or other, 'Five Days to Oblivion' has been doing very well—a good deal better than any of the non-fiction books have. Riding on this encouragement, I've completed a second science mystery, called 'Breakthrough,' which is with the publisher now. He tells me he thinks it is better than the first. So I'm learning. One thing I took special pains about: (since this story, too, deals with a mythical college in Cambridge called the 'Eastern Technological Institute') I made sure that its location and general layout could not be mistaken for M.I.T. It's beyond Harvard on the river and not nearly so big as our own alma mater. Again, the attempt has been to expose the halls of learning to major crime, with the solution of the trouble in the hands of the same Dr. Riam as in the first book. The major objective is suspense and good detective work on a scientific basis. I'm hunting for another good situation for Riam 3rd, because I seem to be slated to get one of these out about every year. 'Breakthrough' can be expected to be published next fall, I suppose. Both our sons, Peter and Chris, will be up for jobs in June. The former gets out of the Navy as a weather man stationed at Quonset Point; the latter out of Denver University with an electrical engineering degree. Glad I don't have to look for an engineering job; it's all I can do, at a dead run, to keep up with what these engineers are doing, let alone to write it down! Hope you are fully recovered. India joins me in love to Mac." Thanks a million, Dave.

Busy members of the Class of '21 still find time to devote substantial efforts to the many activities of the Alumni Association of M.I.T. In the order of their appearance in the current directory of the Association, they are: **Joe Wenick**, member at large of the Alumni Council; **Chick Kurth**, Class Representative on the Council; **Mich Bawden**, representing the M.I.T. Club of Cleveland; **Josh Crosby**, Bangor; **Frank Kittredge**, Monterey, Mexico; **Ace Rood**, Indianapolis; **Joe Wenick**, New Jersey. Class of 1921 officers are **Ray St. Laurent**, President; **Irv Jakobson**, Vice-president; **Cac Clarke**, Secretary-Treasurer; **Ted Steffian**, Assistant Secretary; **Ed Farrand** and **Larc Randall**, Class Agents; **Bob Miller**, Photo Historian; **Mel Jenney**, 45th Reunion Chairman. Representatives on M.I.T. Departmental Visiting Committees include **John Lee** for Mechanical Engineering and **Andy McKee** for Naval Architecture and Marine Engineering. Officers of various M.I.T. alumni clubs include: **Charlie Manneback**, President, M.I.T. Club of Belgium; **Wally Adams**, Secretary-Treasurer, M.I.T. Club of the Miami Valley; **Dick Richards**, Second Vice-president,

M.I.T. Club of Central Pennsylvania; **Joe Wenick**, Treasurer, M.I.T. Club of Northern New Jersey; **Tom Card**, President, Technology Club of New Bedford. Members of the Educational Council of the Institute include: **Sam Lunden**, California; **Ray St. Laurent**, Connecticut; **Ed Farrand**, Georgia; **Harry Field**, Hawaii; **Joe Wenick**, **Sumner Hayward** and **Cac Clarke**, New Jersey; **Irv Jakobson**, New York; **Ray Snow**, North Carolina; **Wally Adams**, Ohio; **Si Freese**, Texas; **Gene Rudow**, Washington. **Warrie Norton** is a past president of the Alumni Association.

A card has just arrived from **Munnie** and **Alex Hawes**, bearing a photo of the Munich Karlsplatz and the message: "This is the view from our hotel window. So far, we have had a wonderful trip. The GM Opel skips along at 60 to 70 on the autobahns. To date, we have been to Amsterdam, Antwerp, Luxemburg, Rhine River, Lake Como, Baden-Baden, Innsbruck, Oberammergau, Berchtesgaden, Vienna and Munich. Regards." Many thanks. We always get a special charge out of the German air mail labels, which advertise "MIT" LUFTPOST! . . . Dr. **Frederick W. Adams** is the author of an article entitled "Measuring Food Migrants," which appeared in the March issue of "Modern Packaging." Prior to joining Continental Can Company in 1953, Fred had been associated with the Clark Thread Company, Pittsburgh Plate Glass Company and the Mellon Institute. . . . Professor **John T. Rule** was a guest speaker at Wesleyan University in a symposium on "The Modern Generation—Causes and Development." . . . **J. Rowland Hotchkiss**, President of the Palnut Company of Mountainside, N.J., was elected a director of United-Carr, Inc., of Boston. . . . **Samuel E. Lunden**, Honorary Secretary and prominent Los Angeles architect, was named the Institute's official representative in the academic ceremonies which attended the inauguration of Franklyn A. Johnson as the fourth president of California State College in Los Angeles.

Rufe Shaw writes: "I routed our return trip from Egypt via Madrid and cabled **Helier Rodríguez** that we were passing through. He and Graciela came down to the airport, and we had tea together while the plane was being refueled. Your comments in The Review on our classmate, **Dick Richards**, who is a radio ham, brought back vivid memories. I used to be one, too, and pounded brass. No ham would be caught dead with that stuff now. There was no FCC but, out of courtesy, hams did not come on until the broadcasting stations went off the air at 11 P.M., Pacific Time. I used a regenerative circuit with the tickler coil 180 degrees out of phase with the grid. You could tune the aerial and get reasonably good modulation. Not everybody was courteous. One scalawag had a spark station that was all over the scale. We put a loop in the back of a car and tracked him down. We approached him with kindness and courtesy, but he told us that the air was free. So we went home, got an axe and cut down his aerial. He was back on the air within an hour and announced

that if the villains who had cut his aerial came back, he would be waiting with a double barreled shot gun that was not loaded with sofa cushions. We took a coil of rope, hooked onto the antenna tower, snaked it down and through the yard while the owner blasted away harmlessly. Then we went on the air and announced that anyone who used a gun could expect further trouble unless he modulated his transmission. I guess he saw the light, for soon he was pounding brass like the rest of us and as chummy as two pups in a basket. Ah, those were the days! Now, all of the romance has gone out of being a ham." We pause for a rebuttal from **Dick Richards**: "Yes, Rufe, we did pound brass and apparently at a somewhat more tender age, for there were no broadcasting stations, practically no ham had a vacuum tube and regeneration wasn't even wishful thinking for a World's Fair futurama. Our first rig was a Ford spark coil on a bed spring aerial that "tuned" as broad as the Atlantic. Still have our first DeForest Audion, circa 1910, one filament remaining, that was part of a slide tuner, replacing a piece of galena which had, in turn, replaced a homemade coherer-decoherer that never really did work. How come you weren't a member of the M.I.T. Radio Society, which maintained classy 500-cycle quenched gap transmitters and both CW and voice-modulated tube outfits and included a member by the name of Jay Stratton, '23, as one of its junior operators?"

Dr. **Augustus B. Kinzel** of Union Carbide Corporation is chairman of the organizing committee which seeks a Congressional charter for a National Academy of Engineering that would serve in an advisory capacity to the government and also as an honor society for U. S. engineers. . . . "Prescription for Superrailroad Service" is the title of an interesting article by **John W. Barriger, 3d**, President of the Pittsburgh and Lake Erie Railroad, appearing in "Business Horizons." John writes: "My theme song of 1956 was, 'It is a paradox that America—with its burgeoning economic life—should have superhighways, supermarkets and super everything else, while there are no superrailroads.' Economical railroad transportation, then and now, is the foundation on which 'supereverything' in present day American life is based." He also says: "The end of 1964 will bring about my mandatory retirement at the conventional age limit of 65 for railroad service of officials. My railroad career, having begun in 1917, will have extended over a period of 47 years, providing ample opportunity for observations, study and reflection upon the problems and opportunities of the industry." The editor notes that, in the month John took to prepare the article, he had phoned the editorial offices from Pittsburgh, Mexico City, Spokane, Vancouver and Los Angeles; he had breakfasted with some 300 different people and had lunched or dined with many times that number. He further notes that "Since the time of his graduation from M.I.T., Mr. Barriger's fertile mind and great ability have ministered to the railroads of the

U.S. in many positions of high responsibility with operating companies and with the Reconstruction Finance Corporation. In his mid-twenties, he developed a plan of railroad consolidation that now shows promise of fruition. He was selected for this article because of the great imagination he has always shown concerning the role which railroads could play, as evidenced in the brilliant book he published in 1956, 'Superrailroads for a Dynamic American Economy,' (Simmons-Boardman Books, New York)." . . . Life membership in the Colorado Society of Engineers has been conferred upon **Dana E. Kepner**. The society's "Western Engineer" comments: "A native of Colorado, he attended schools in Denver and was graduated from M.I.T. with an S.B. degree in sanitary engineering. He then became assistant in sanitary engineering and public health at the Harvard University Engineering School; later assistant engineer for the Chicago Sanitary District; and then sanitary engineer for the Colorado State Health Department. In 1929, he became district manager of the Denver office for Pacific States Cast Iron Pipe Company; in 1933, a manufacturers' representative handling water works and sewage treatment equipment; and in 1954, the presidency of the Dana Kepner Company. He has been a registered professional engineer in Colorado since 1928 and joined the Colorado society in 1934." . . . Announced by an airmailed card from Seoul, South Korea, **Saul Silverstein** is off on his "n"th trip abroad. We have lost count! His terse note says: "Hi! After Japan, Korean seminars. Then India, Thailand, Malaysia, Hong Kong and Honolulu, where I'll meet Rigi. Regards." Saul is the only American participating in a four-day seminar in Seoul, attended by some 60 leading business executives from 10 Southeast Asian countries. Sponsored by the Indo-Pacific Council of the Comité International de l'Organisation Scientifique, the conference is the first to be held in Korea and the first to include both Asian and non-Asian discussion leaders. On his return trip, Saul will lecture at the University of Hawaii. Harry Field please note. To this writing, we have received only five of Saul's usual highly descriptive letters to the folks back home, covering a three-week period with 39 pages of most pungent and discerning comments on his experiences and observations. . . . **Walter J. Hamburger** is a founder, director and treasurer of the Fabric Research Laboratories, Inc., of Dedham, Mass., devoted to research, development and consultation in the fields of fibrous, organic and related materials.

It is with profound sorrow that we record the passing of four members of the Class of '21 and extend to their families the sincerest sympathy of everyone in the class. **Don Gilmore Shingler**, of 4000 Cathedral Avenue, N.W., Washington, D.C., Brigadier General, U.S. Army, retired, died on October 29, 1963. Born at Perry, N.Y., on October 25, 1896, he was graduated from the University of Wyoming and the U.S. Military Academy prior to obtaining his bachelor's degree in civil engineering with us. He then

served in the U.S. Engineer Office and returned to West Point as an instructor. On completion of the course at the U.S. Engineer School, he was engaged in a military survey of Panama and then completed the course at the Command and General Staff School at Fort Leavenworth, Kansas. He was also graduated from the Army War College. He organized and commanded the 87th Engineer Battalion, Fort Benning, Ga. He was placed in charge of the Persian Gulf Command, covering communications activities in Iran and Iraq. Following a tour as commandant of the Engineer Unit Training Center at Camp Claiborne, La., he joined the staff of the First Army in England as chief of the amphibious section and saw service on Omaha and Utah Beaches, where he sustained injuries requiring hospitalization in the United States. He was then designated director of the International Division, responsible for the supply of military lend-lease materials to the Allied Nations. He was later deputy administrator of the War Assets Administration and returned to Europe as chief engineer of the U.S. European Forces. Following World War II, he served as division engineer for the Upper Mississippi Valley until specially detailed to the Marshall Islands Joint Task Force for the Atomic Energy Proving Grounds. He was in charge of the Missouri River Engineer Division during the record-breaking 1951 floods of the Kansas and Missouri Rivers. He was subsequently chief of staff of the Engineer Center at Ft. Belvoir, Va. His decorations include the Distinguished Service Medal, Legion of Merit with Oak Leaf Cluster, Order of the British Empire and the French Legion of Honor. On his retirement, he was general manager of the Korea office of Tippetts-Abbett-McCarthy-Stratton, consultants to the U.N. Korean Reconstruction Agency. He married the former Beatrice Clark of Lexington, S.C., who survives him. We are indebted to Colonel Thomas M. Metz, Secretary of the Association of Graduates of the U. S. Military Academy, for aid in preparing these notes.

Bruce Falconer Rogers, of 20 Hillcrest Lane, Rye, N.Y., died on March 9, 1964. Born April 10, 1900, at Norwich, Conn., he prepared for Technology at Norwich Free Academy and was graduated with us in Course X. At the Institute, he was a private in the S.A.T.C. during World War I, a member of Sigma Alpha Epsilon, K₂S, the Chemical Society, Musical Clubs, Tech Show and, in our sophomore year, on the tug o' war team. He was associated with the U. S. Finishing Corporation, the Aspinook Corporation, Winston Prints, Inc., and the Textile Printing and Finishing Company, Inc. He retired in 1961. He was also a member of the Rye Presbyterian Church and a Master Mason of the Grand Lodge of Connecticut. He is survived by his wife, the former Margaret L. Auert; a daughter, Justine Auert Rogers; and a son, Bruce Falconer Rogers, Jr. We are indebted to Mrs. Rogers for aid in preparing these notes. . . .

Thomas Dodson Stamps, Brigadier General, U.S.A., retired, died in Walter Reed Army Medical Center on April 12, 1964.

From 1938 to 1956, he headed the Department of Military Art and Engineering at the U. S. Military Academy. During these years, he wrote and developed texts from which future officers learned about past wars. He was also responsible for a series of books which brought the latest developments of World War II to cadets at the Point. He was appointed dean of the Academic Board at West Point in 1956 and retired from the Army the following year. Until last August, he taught military science at the University of Maryland. He had been a member of the Class of 1917 at the U.S. Military Academy. Commissioned a captain, he saw extensive service in France in World War I. He obtained his bachelor's degree in civil engineering with our class and was a professional construction engineer. He spent four years with the Office of the Chief of Engineers before his appointment to the West Point faculty. He had been awarded the Legion of Merit with Oak Leaf Cluster and was a member of the French Legion of Honor. Survivors include his wife, Lois, and two daughters, Mrs. Charles D. Daniel of Arlington, Va., and Mrs. John A. Poulson of Falls Church, Va. . . . **David Louis Steidlitz**, owner, president and treasurer of David Steidlitz, Inc., 130 East Main Street, Rochester 4, N.Y., has passed away. The date and further information are not now available. He was associated with us in Course II and was a private in the S.A.T.C. at Technology during World War I. He was a partner in the D. and M. Seidlitz Real Estate Company in Rochester prior to opening his own offices in that city.

You have received the Class President's letter from Ray St. Laurent and the special announcement from the Amity Fund Board, summarizing the activities toward this year's special Fund goal. We hope you will contribute again and thus continue your subscription to The Review so as to be among the flock which will gather around the cheery 1921 fireside when the next issue appears in November. In the meanwhile, your secretaries will be most appreciative of your letters, cards or notes with news of your usual or retirement activities, travels, grandchildren or whatever is uppermost in your mind when you read these notes. Write us now. All of your class officers and committee chairmen join in wishing you and yours a most pleasant summer.—**Carole A. Clarke**, Secretary, c/o ITT Data and Information Systems Division, Route 17 and Garden State Parkway, Paramus, N.J. 07652; **Edwin T. Steffian**, Assistant Secretary, c/o Edwin T. Steffian and Associates, 376 Boylston Street, Boston, Mass. 02116.

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Our main warning on this lovely, sunny day is to be careful of scorched fingers while showing the grandchildren how you used to hold fire crackers on the Fourth of July. Keep well for our get-together in September and the big 1967 Reunion at the Wianno Club. . . . Congratula-

tions to **Abbott Johnson** who has been made chairman of the board of Warner Machine Products, of Muncie, Ind. . . . Also and again to **Sam Reynolds**, Vice-president of Great Lakes Carbon Corporation. Sam joined Great Lakes in 1949 after his long experience with Crucible Steel Company of America. He has most recently served as general sales manager of the Graphite Products Division and will continue to be located in New York City. Sam is a past president of the M.I.T. Club of New York. . . . The Commissioner of Natural Resources of Massachusetts has announced the appointment of **Arnold E. Howard** of Lexington to his third consecutive five-year term as Chief of Recreation in the department. During his long term of service, Howard has been in charge of planning, operating and maintenance of the outdoor recreation program at 42 state forests and parks. In addition he has been in charge of their \$5-million expansion and development program. . . . **Donald Patrick Moynihan** has joined with Nathan Glazer of Harvard in writing a highly complimented book entitled "Beyond the Melting Pot: The Negroes, Puerto Ricans, Jews, Italians and Irish of New York City."

Dr. Eastman Smith retired in February from the staff of the Mechanical Engineering Department of the University of Missouri in order that he might continue research on optical refraction instruments. He was encouraged to do this when an older man, who was approaching blindness, regained his reading ability partly through Dr. Smith's research. Dr. Smith has worked as an aeronautical machinist, a consulting mathematician, a consulting engineer and has taught 24 different technical and scientific subjects at New York University, Newark College of Engineering and the University of Connecticut. He is retiring to Damariscotta, Maine.

. . . **Charles Willis (Bill) Stose** has been cited in the Atlantic Magazine for his constructive work at the Atlantic Refining Company. He is plant manager of the Philadelphia Refinery, having charge of more than 2,600 employees and has played a large part in the modernization of the refinery. He had previously worked on the design, construction and operation of pipe stills, had a training assignment in lubricating, and has been general manager of crude oil purchases and sales. His career covers the complete evolution in petroleum processing from 1925 to the present. His hobbies include rose gardens, bridge and fresh water fishing. . . . **Horace McCurdy's** new retirement address is 1001 Hoge Building, 705 Second Avenue, Seattle, Wash. 98104. He received the Alumnus Summa Laude Dignatus at the Commencement exercises at the University of Washington in June. He has found time to be a civic leader as well as a most successful industrialist. Horace has been active in the development of the Museum of History and Industry and McCurdy Park. The Puget Sound Maritime Association named him the Maritime Man of the Year in 1955, and the Seattle section of A.S.C.E. named him Civil Engineer of the Year in 1959. Compliments to Horace and best wishes to Catharine.

We have word from **Wilfred (Tommy)**

Thompson of South Norwalk that he is planning to move to San Francisco to operate a new sales office for Nash Engineering Company. Tommy and Janet still hoped to be at Class Day in June. He sent word that **John L. Liecty** has retired as vice-president of the Arizona Public Service Company after 18 years. He will do some special consulting jobs on rates and finances and follow his earlier desires for extensive travel around the world. He also hopes to take an automobile tour which will allow stops at friendly ports throughout the United States. . . . Our sympathy goes to the families of **John R. Sheffield, Jr.**, of New York; **James F. Brittain** of Weymouth; **George T. Bailey** of White Plains; and **Harold A. Hadley** of Hanover, N.H. . . . Among the new addresses received are those of Colonel **Robert S. Barr**, Cambridge; **Rollin S. Baldwin**, Vienna, Va.; **Percy B. Bass**, Trenton, N.J.; Colonel **Paul C. Howe**, Stuart, Fla.; **Henry M. Schley**, Jacksonville, Fla.; **Sidney M. Strauss**, Newton, Conn. . . . And now for a summer vacation beside Lake Erie and the most beautiful area of the United States. —**Whitworth Ferguson**, Secretary, 333 Ellicott Street, Buffalo, N.Y. 14203; **Oscar Horovitz**, Assistant Secretary, 33 Island Street, Boston, Mass.

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"Research Management" for March, 1964, contains an interesting article by **J. A. Stratton**, entitled "Science and the Progress of Management." A footnote adds: "An alumnus of the school he has served as president since 1959, Julius Stratton has a doctorate in mathematical physics from the Eidgenossische Technische Hochschule of Zurich. He has also studied at the Universities of Munich and Leipzig. He taught electrical engineering and physics at M.I.T. and became the first director of its Research Laboratory of Electronics. He received the Medal for Merit from the Secretary of War, the Certificate of Award from the U.S. Navy, Medal of Honor of the Institute of Radio Engineers, and the Faraday Medal of the British Institutions of Electrical Engineers. He is a member of numerous learned societies, including the National Academy of Sciences, of which he is vice-president. . . . In "Louisiana Schools" for February Wallace L. Jones, Jr., Assistant State Director, School Attendance, begins an article entitled "The Dropout: A Challenge to our Society" by saying "I believe it was Dr. Stratton, President of M.I.T., who said that half of all we know in science was learned in the last 10 years." . . . News has been received of the death of Colonel **Willis E. Teale**, 973 Bruce Avenue, Clearwater Beach, Fla., on March 30, 1964. No details are available. . . . **Austin Southid Myers**, 67, of Town Street, East Haddam, Conn., died at the Veterans' Administration Hospital, Newington, March 29, 1964. He was a member of Theta Delta Chi. After graduation he joined the A. G. Spaulding Company and helped establish a plant in Australia

and served the company in England and Millanmasset, Mass. He later joined the Pratt and Whitney Aircraft Corporation, where he was a chemical engineer until his retirement in 1961. He was active in yachting and was a member of the Coast Guard Auxiliary, the Springfield Power Squadron, of which he was a past rear commander, the Essex Yacht Club and a former member of the Springfield Yacht Club. During World War I, he was a radio operator and sub chaser in the Navy and during World War II he was in the Coast Guard Reserve.

Hawley S. Young, 62, of 52 Pond Street, Needham, an engineer for the New England Telephone and Telegraph Company for the past 41 years, died suddenly at his home on February 6, 1964. He had lived in Needham for the past eight years and was a member of the Neboiden Lodge A.F. of A.M., and the Congregational Church of Needham. . . . Information has been received from Golda E. Valentine, R.R. #2, Zionsville, Indiana, dated March 10, 1964, relative to the death of **Roger E. Valentine**: "Roger died suddenly of a heart attack in Tsumeb, South West Africa, while in the employ of the Tsumeb Corporation. We had been living in Tsumeb nearly two years prior to his death. Roger would have been 62 years old on January 25, 1964. He was buried in Tsumeb on December 11, 1963, and the Masons conducted as much of the service as the South African laws would allow. I was told that the Masons held private services in their lodge before and after burial. A memorial fund was set up by the Monterrey, Mexico, Mason Lodge for Roger, and the donations are being sent to the Crippled Children's Hospital, Mexico City. . . . **Alfred E. Perlman**, President of New York Central Railroad, was guest speaker at Presidents' Night (New York Railroad Club) on April 16, where he discussed some new approaches to the solution of railroad problems. He became a roadmaster in 1927, remaining in that position until 1931, when he entered the Harvard School of Business Administration. When he left the Northern Pacific in 1934, he had risen to the post of assistant to the vice-president of operations. His next position was as a consultant with the railway division of the Reconstruction Finance Corporation. This was followed by service with the Burlington Railroad in 1935-1936 as assistant engineer in charge of rebuilding the railroad's lines in Colorado, Nebraska and Kansas after the flood of 1935. In 1936, he joined the Denver & Rio Grande Western Railroad as engineer, maintenance of way. He became chief engineer in 1941, general manager in 1948 and executive vice-president in 1952. In 1954, he left the Denver & Rio Grande to become President of the New York Central System, with headquarters in New York City. Besides his post as president of the Central, Mr. Perlman serves as director on the boards of many of the nation's railroads. During World War II, he served as an engineering consultant to the Defense Plant Corporation in Las Vegas, Nev. In 1949, he was consultant on Korean railroads to the Department

of State. In 1950, he served the government of Israel in a similar capacity. Mr. Perlman is a trustee of Denver University, and this year is chairman of the board of trustees of the American Heritage Foundation. He is a director of the Association of American Railroads, the New York Convention and Visitors Bureau, the Commerce and Industry Association of New York, the New York World's Fair, the Transportation Association of America and the National Coal Policy Conference. Surrounding the speaker, Mr. Perlman, at the head table at the meeting was an impressive group of railroad industry leaders, including John W. Barriger, '21, of the Pittsburgh and Lake Erie.

TAPPI news for February, 1964 indicated that **Fernando de la Macorra** is director, Cia de las Fabricas de Papel de San Rafael y Anexas, S.A., Mexico, D.F. . . . The High Point Enterprise, High Point, N.C., for January 28 stated that Dr. **E. O. Cummings** took part in career day at Thomasville High School. He conducted the discussion on careers in chemistry and mathematics. He is director of High Point College's industrial coatings center and former chairman of the Chemistry Department. He went to High Point College in 1918. He has worked closely with business and industry in the Industrial Coating Center at the college where students are trained as industrial coatings chemists capable of carrying on and directing research in the coating field. . . . **William Webster**, Chairman and Chief Executive Officer of the New England Electric System, has been elected to the boards of directors of Aetna Life Affiliated Companies. . . . Word has been received of the deaths of Colonel **Harold W. Rehm**, 714 116th Street, Seattle 77, Wash., on April 2, 1961 and Colonel **Cecil G. Young**, 817 Alhambra Circle, Coral Gables, Fla., on March 23, 1962. No details are available. . . . The following changes in address have been reported: **Bernardo Elo-sua**, Juarez YS de Mayo, San Pedro Garza Garcia N.L., Mexico; **A. Griffin Ashcroft** Chimney Point Road, Brookfield, Conn.; **Orr N. Stewart**, 10514 S. Shaker Boulevard, Cleveland, Ohio; **Erling Lieberg**, 16748 Edgar Street, Pacific Palisades, Calif. 90272; **Hall Kirkham**, 18301 North Park Boulevard, Cleveland, Ohio 44118.—**Forrest F. Lange**, Secretary, 1196 Woodbury Avenue, Portsmouth, N.H. 03801; **Bertrand A. McKittrick**, Assistant Secretary, 78 Fletcher Street, Lowell, Mass. 10852.

'24

By this time our 40-Year Reunion is past history. We will have the highlights in our first column next fall. If it lived up to expectations—and we feel sure it did—it was a corker. The advance correspondence brought out some interesting items. The **Ifelds** couldn't make it because they were traveled out. **Max** and **Bertha** spent a good part of the winter "sailing the South Sea islands with a

month stopover in New Zealand and Australia and a month on the Island of Kauai, Hawaii. We had a fine time and enjoyed meeting the people down under and particularly the reversal in seasons. The only snow we saw was on the high peaks of the South Island." They have a nephew, David, entering M.I.T. this fall. . . . The **J. Adalberto Roigs** had recuperated sufficiently from their travels of last fall to be with us. They made "a very interesting trip on the Cunard liner 'Caronia' to 25 different places in the Mediterranean, including a visit to Odessa in Russia, Bucharest in Rumania, Varna in Bulgaria, and Dubrovnik in Yugoslavia. The trip lasted 55 days and was really most interesting." Al's latest honor, by the way, was being elected president of the Association of Sugar Producers of Puerto Rico.

Who should drop into the office recently but the president of the American Nuclear Society, none other than Dr. **Clarke Williams** of the Brookhaven National Laboratory. Clarke is a member of the Visiting Committee for M.I.T.'s Department of Naval Architecture. He was in Boston to give a talk and stopped off to see his department and your secretary en route. . . . I have never been exactly sure what Wyatt, Incorporated is. **Phil Blanchard** is vice-president of operations, and his brother Carl, Class of '18, is board chairman. Now comes an explanation. "I believe our New Haven Deep Water Terminal, which handles about all grades of oil and asphalt, is the largest independent in New England since White Fuel was sold to Texaco. If any of our classmates would like to stop in and see a first-class operation, I would be pleased to show them one." . . . **Addison K. Wills** retired from A.T.&T. Long Lines in June 1960. He and Mrs. Wills headed south to Tryon, N.C., last July. "We are very happy living in the mildness of the Thermal Belt and have found some fine new friends to make our life a pleasant one." . . . **Maurice T. Crowell** retired about a year ago from the Wisconsin management of a group of Boston insurance companies. It was primarily because of a very serious illness of some years before, but he is now back in business as an insurance agent although not quite full time. He still plays golf and a widespread family keeps the Crowells traveling about the country.

One last retirement, that of **Godfrey G. Kearful**, who was originally with the Class of '23. At the end of March he retired as chief plant and process engineer of Saginaw Steering Gear Division, General Motors. . . . The last retirement, that is, unless you count that of **Hudson Hoaglund**. After three years as president of the American Academy of Arts and Sciences, he has turned over the reins to someone else. Dr. Hoaglund has authored a new book titled "Cybernetics of Population Control." . . . And a last note of erudition: at the winter meeting of the Aerospace Sciences in New York, **Hoyt C. Hottel** chaired a session on "Opacity Calculations and Rocket Radiation." . . . Be back again, next fall with the reunion wrap-up. A good summer to you all.—**Henry B. Kane**, Secretary, M.I.T., Room 1-272, Cambridge, Mass. 02139.

'25

The activities of **Sam Spiker**, **Mac Levine** and **Fred Greer** are bringing to the attention of your secretary more items of information regarding classmates, and this is fine! During the next 10 months or so, we have a big job to do, building up to a banner 40th Reunion and an appropriate 40th Reunion Gift to M.I.T. It is hoped that all of you are planning to attend the reunion, but a note from you indicating that this is your intention will make possible improved publicity at an early date. . . . A letter from Mac Levine to **Ed Harris** in Lynchburg, Va., has resulted in Ed's agreeing to assist Mac with the 40th Reunion Gift, and has brought me a letter from Ed indicating that he and his wife, Mary, are definitely planning to attend the 40th Reunion. Ed is planning an early retirement from The Mead Corporation, with whom he has been associated over many years, having been active in all phases of the business from pulp to sales service to paper to paperboard manufacture and sales, and is now vice-president in charge of marketing for the paperboard end of the business. Following his retirement, he expects to do some traveling. Since he anticipates it is not going to be easy to get out of the harness, he hopes to end up with some kind of relaxing work.

A note from **Y. H. Ku** at the University of Pennsylvania notes that he has been teaching there since 1952. He is presently working on his fifth book entitled, "Adaptive Control Theory," which will be published by the Macmillan Company. He has been invited to present a paper entitled "On Topological Approaches to Network Theory" at I.C.M.C.I., Tokyo, Japan, and to present another paper entitled "On Stability of Some Fourth-Order Nonlinear Systems With Forcing Functions" at the International Colloquium to be held at Marseille, France, in September, 1964. He notes that he is a fellow of the I.E.E.E., and hopes to be at the 40th Reunion. . . . **Jesse L. Maury**, '25 and Sloan Fellow, '32, has been elected president of the Perlite Institute. Perlite is a lightweight mineral aggregate used extensively in the building trades for making lightweight wall plaster and insulating concretes. Recently it has found its way into the chemical industries as a filter aid and fertilizer conditioner. The Institute is the technical research and market development trade association of the industry. Its membership includes producers of about 75 per cent of domestic perlite and a number of producers in other countries. Jesse graduated in 1925 in Course III, spent several years in western mining and returned for his master's degree in business administration as one of the first group of Sloan Fellows in 1932. He spent some time as mine valuation engineer for the Securities and Exchange Commission in Washington and for the Lehman Corporation in New York. During the Second World War, he was a price administrator for domestic copper, lead, and zinc mines. Since then, he has car-

ried on a general consulting practice and founded and managed the Atlantic Perlite Company of Washington, D.C.

The Kerite Company in New York City notes that **Ralph B. Norton** has recently been made vice-president and technical director of that company, supplier of insulated wires and cables to the transportation, communication, electrical utilities and railroad industries. Ralph has been with the Kerite Company since 1926 and has been chief engineer since 1958. . . . The "National Safety News" has recently announced the election of **Donald G. Vaughan**, Assistant Vice-president, Engineering Department, Aetna Casualty and Surety Company and Standard Fire Insurance Company, as a fellow of the American Society of Safety Engineers. This is the highest membership rank the society bestows on its members. Fellows are elected for outstanding contributions to the safety engineering profession. . . . Perhaps some of you read in a recent issue of the 'Audubon Magazine' an article entitled "Metusalem of Trees: The Bristlecone Pine." This article is a tribute to an ancient and battered pine tree which, according to **Weldon F. Heald**, expresses movingly an abiding respect for one of the few living links between the Middle Ages and the Space Age. His is the voice of a New Hampshire native who has explored the mountains, forests and deserts of the Far West for 28 years. He is one of our classmates who studied architecture at M.I.T.

A recent letter from the president of the Harvard Co-operative Society notes that "The Coop" is planning to construct a new building for the book department. This building was designed by **Samuel Glaser Associates**, who are also the architects for the John Fitzgerald Kennedy Federal Building in Boston's new Government Center. . . . Several address changes, indicating the members of the class are in some cases moving considerable distances, may be of more than passing interest. **George F. Chapline** has a new address, 1327 Inspiration Drive, La Jolla, Calif. 92037. **Bob Huthstainer**, who for many years has been located in Columbus, Ind., may now be reached through P.O. Box 2008, El Paso, Texas. **Fred Walker** has moved from Wilmington, Del., to Haddam, Conn.; and **Henry Williams**, from Baltimore, Md., to 1255 Wilkinson Avenue, Orlando, Fla. **Frank Harris**, whose old address was Frederick, Md., is now located at 18660 Lenaire Drive, Perrine, Fla. **Robert L. Rockefeller** has changed his address from New York City to 1920 South Ocean Drive, Fort Lauderdale, Fla. 33316. . . . I am sorry to report the death of **Joseph J. Wickham** in Tarrytown, N.Y. His death occurred in December of 1963, and was only recently made known to your secretary.—**F. L. Foster**, Secretary, Room 5-105, M.I.T., Cambridge 39, Mass.

'26

This issue of notes is being written in Bermuda instead of Pigeon Cove. Instead of rushing to meet a deadline, they are

being written in advance on a rainy, windy morning that prevents us from going to the beach. I had tossed an envelope marked 'Class Notes' into the suitcase, just in case, so here we are sitting out some bad weather along with some other M.I.T. men who also happen to be vacationing here. Vincent Vappi, '48, and his wife were on the same plane from Boston and Vincent Estabrook, '36, is also on the island waiting for the weather to clear so he can come to visit us on his motorbike. Let's see what is in the envelope. Here's one about **Bob Dawes** whose outfit, Thomas Taylor & Sons, Inc., is celebrating its 100th anniversary: "Robert Taylor Dawes, President and Treasurer of the company, and grandson of the founder, reviewed the history of the firm which began in 1864 when Thomas Taylor, a young but experienced weaver, went into business for himself in the city of Derby, England. Mr. Taylor started with one employee—himself—and one piece of equipment—a loom. Today, Thomas Taylor & Sons has 350 employees who operate 105 looms, 1,600 braiders and 41 knitting machines housed in three plants in Hudson, Mass., and one in Ansonia, Conn. Under the leadership of Robert Taylor Dawes [the company] has had its greatest period of expansion and diversification." . . . Here is one out of the 'Wesleyan Alumnus,' since it seems that our classmate attended that college before M.I.T.: "**Dwight Woods**, Vice-president of operations of the Nashville Gas Company, was graduated from M.I.T. in 1926 with a degree in chemical engineering, after two years at Wesleyan. He has been with Nashville since 1927 and is combating TVA (for which you and I pay taxes to help offer low rates to Nashville's competitors). Dwight was married in 1942 to Clemmie Eaton of Jackson, Miss. They are now living on a man-made lake in Old Hickory, Tenn., only 15 miles from Nashville. Outside activities naturally are boating and fishing, also hi-fi. His son, Allen, is an engineer at Avco in the aviation department and has given Dwight two grandsons, one and one-half and three years old." It has been a long time since hearing about Dwight, and even via Wesleyan we are happy to be able to include it in the notes.

A clipping from the Boston Herald tells of the death of **Richard Waynard Vosper** in Hanover, N.H. Wayne had retired from I.T.T. last fall and was living in Greenwich, Conn., and Cornish, N.H. For the class we extend our sympathy to Mrs. Vosper and Wayne's daughter, Sally. . . . This next clipping arrived a little late but it is still news and good news. "**James R. Killian, Jr.**, Chairman of the Massachusetts Institute of Technology Corporation, has been awarded the 1963 Hoover Medal, a joint award of the four original Founder Societies. The award was conferred at the annual banquet of the American Society of Mechanical Engineers, held in Philadelphia. The Hoover Medal, founded in 1929 to commemorate the civic and humanitarian achievements of Herbert Hoover, is 'awarded by engineers to a fellow engineer for distin-

guished public service.' Dr. Killian was cited as a 'distinguished educator, administrator, inspired builder of a great institute of engineering and science, tireless public servant and spokesman for the scientific community, adviser to three presidents, whose brilliant leadership has quickened our scientific and engineering development as a nation and brought technology into the highest service of mankind.'" We proudly congratulate Jim for this new honor. . . . The clipping services still bring us word of **Jim duPont's** speaking engagements, this latest one from Jamestown, N.Y., where Jim addressed the Rotary Club. . . . From the magazine 'Finance' we learn that **George Edmonds** is relinquishing his assignment as chief executive officer of the Wilmington (Del.) Trust Company but will continue as chairman of the board and a member of the executive and trust committees with offices in the bank. . . . **Stuart W. John** has been elected vice-president of Commonwealth Services, Inc., which he joined in 1951. Stuart has had 33 years professional experience in utility operations and consulting. . . . With all these clippings I am entitled to slip one in from today's 'Bermuda Royal Gazette' which gave me a really needed rainy day chuckle at breakfast. The article told of the retirement of Harold Wilkinson as deputy board chairman of The Shell Transport and Trading Company, Ltd., and I shall quote verbatim the last paragraph: 'Mr. Wilkinson owns the yacht, Donchery, which was dismasted during the 1962 New York-Bermuda Race. On board at the time was the former governor, Sir Julian Gascoigne, who, it is said, lost his monocle when the mast went overboard.' With this light note we will say cheerio and catch a cab to take us to lunch.—**George W. Smith**, Secretary, E. I. duPont de Nemours and Company, Inc., 140 Federal Street, Boston.

'27

In the April notes, I referred to **Jim Lyles'** operation, and in the June notes (written in April) was able to report that he was making a good recovery. Jim has since had to undergo another, similar operation to relieve a restriction in the other artery in his neck, and he is still seriously ill. I hope to have better news next time. . . . After graduating in Course I, **Westervelt A. Taylor** went to Fordham Law School and entered the bar in Queens. In 1948, he was named a Queens County, N.Y., assistant prosecutor. He was subsequently branch attorney for the United States Office of the Housing Expediter, and civil engineer and attorney for the City Planning Department of the City of New York. The New York City Council has now appointed West as finance analyst of their Legislative Finance Unit. Another step in a well-rounded career. . . . **Edward D. Stone**, one of the nation's foremost architects, spoke on American attitudes toward beauty, at a Universalist Church service in New York. His comments, as they were reported in the New York Times,

are of very great interest: "In 50 years—we do everything rapidly—we've converted this country from one of the most beautiful on earth to one of the ugliest. . . . It is doubtful whether anything as pure and as refined and as beautiful as the New England village green, with its stately elms, with the white spire of its church and the quietly elegant houses of the affluent villagers, has existed elsewhere in history. Privately, this graciousness was carried through into the finest details of furniture, china and silver. (But today) we see our forests despoiled, our countryside stripped of trees but not of neon billboards, sprawling junkyards and jerrybuilt diners, drive-ins and used-car lots—any catch-penny material device. In this period of prosperity and abundance, we can afford everything but beauty." Of the future he said: "The arts have traditionally flourished in periods when there was emphasis on considerations of the spirit, peace, prosperity and a stable government. If history follows this course, we can look forward to such a period. . . . I hold that we are morally obligated to leave a beautiful heritage for future generations. Furthermore, I consider it just as praiseworthy to share and provide beauty to feed men's souls as it is to give food and shelter to care for their bodies."

The United States Public Health Service's highest award, the Distinguished Service Medal, has been given to **Vernon G. MacKenzie**, Chief of the Service's Division of Air Pollution, in recognition of his work in the field of environmental health. Mac graduated in Course XI. The Secretary of the Department of Health Education and Welfare presented the award on April 10 at an awards ceremony in Washington. The citation refers particularly to "his accomplishments in recognition of the problems of air pollution and their solution." This is the second honor for Mac in recent months. In January he had been appointed Assistant Surgeon General in the commissioned corps of the Public Health Service. This is a rank comparable to brigadier general in the Army. . . . **Charles C. Smith** has moved from Cleveland to Cincinnati. His new address is c/o The Harvey P. Bertram Company, 1437 Western Avenue. . . . **Harry V. Inskeep** has moved from Newark, N.J., to 1966 Pennsylvania Avenue, Englewood, Fla. . . . Address **Norman L. Hurd** at 3608 South MacGregor Way, Houston, Texas 77021. He formerly lived in Huntington, N.Y.—**Joseph S. Harris**, Secretary, Masons Island, Mystic, Conn.

'28

A post card airmailed from London says: "Darlings, I've forced Vic and George to sign this—they are so full of the most magnificent food and drink. We can have the most lovely reunion here in 1968." The card was signed "with love from Annie" and also included the official signature **Vic DeCorte** and "**Olap**." The card shows an illustration of St. Jacob

in Galicie, a restaurant in Antwerp. We assume the **Palos** dined in style with Victor, who is managing director for Esso in Belgium. Perhaps Annie will tell us of their visits with other classmates during this annual visit to Europe. . . . A note from Akron, Ohio, tells us that **Al Gracia** has been elected vice-president for research of the Goodyear Tire and Rubber Company. You might remember that Al was awarded the Distinguished Award of the Akron Council of Engineering and Scientific Societies last winter. This was reported in the February class notes. . . . Don't blame us for late news, but The Review just sent us a clipping dated March 25, 1963, that reviews the business career of **Tom Garrard**, who was in Course IV-B. At that time Tom was elected new president of the McAlester Fuel Company in McAlester, Okla. Tom assumed these new duties after 15 years service with the company in the capacity of vice-president and assistant to the president. He is also a member of the board of the New Mexico Electric Service Company of Hobbs, N. M. Prior to his association with McAlester Fuel Company, he had been 20 years with Texaco, Inc. at Port Arthur, Texas. Besides diversified interests in coal and lignite, the company also owns oil and gas producing properties and now has operations in 15 states and Canada. Included among these are substantial interests in the East Texas Oil Field and in lignite properties being utilized by Aluminum Company of America at Rockdale, Texas. . . . A note informs us that **Dave Hauseman** has moved to 2611 Jonila Street, Lakeland, Fla. Dave had been division engineer and general manager, W. R. Grace Company in Baltimore.

A big spread in the real estate section of The New York Times of Sunday, April 19, included photos of two large buildings in Manhattan, which won top honors in the biennial competition made by the Fifth Avenue Association for excellence in new and remodeled structures in the Fifth Avenue area. The two buildings were designed by Emery Roth and Sons, Architects. Our interest in this news is centered around classmate **Richard Roth**, a partner in this firm. The Bankers Trust Company building, occupying the west block front of Park Avenue from 48th to 49th Street, and the Regency Hotel, at the northwest corner of Park and 61st Street, were picked as co-winners of the award for the best building erected during the years 1962 and 1963. Perhaps this is a good time to quote from the May 1963 issue of 'Architectural Record,' well illustrated by photos of the Roth brothers and three of the large buildings they have completed: The New York architectural firm of Emery Roth & Sons this year celebrates its 60th year of architectural practice. Many of the most typical New York buildings of two very different areas—the highly ornate luxury apartment buildings of the pre-Depression days and the highly utilitarian commercial office buildings of the post-World War II boom—have been the work of Emery Roth & Sons; and the firm enters its seventh decade with a third generation of the family already in the business and another

member of that generation apparently headed for it. The firm's proclivity for designing profitable buildings for commercial builders has brought it a vast and increasing number of office commissions—at last count 55 completed since World War II, 20 under construction, nine in planning stage. Most (but not all) of these are in New York, a remarkably large number of them on Park and Madison Avenues. It seems unlikely that any other firm in history has been responsible for so many tall office buildings within such a short span of years. In addition, the firm's postwar commissions have included 19 apartment houses completed, five under construction and three in planning stage, besides 10 other projects.

"The Roth firm today cogsists of Richard and Julian Roth, sons of the founder, who as equal senior partners establish policy, establish and maintain client contact and retain all consultants. Richard Roth is the architect head of the firm, working with clients in the initial stages of design development, approving all designs and in charge of production. His brother Julian (not an architect) is in charge of business matters and chief advisor on the materials and construction side. Richard, Jr. (a 1957 architecture graduate of Miami University, Oxford, Ohio) is involved in site analysis, design and planning and client liaison; he works closely with the heads of design and drafting. Richard Sr. fell in love with architecture in his father's drafting room at the age of 5 or 6 and says he never thought of being anything but an architect. He joined his father's firm immediately after getting his B.S. in architecture at Massachusetts Institute of Technology in 1928; Julian had preceded him by two years. These were the climactic years of Emery Roth's apartment house practice—from 1916 to 1930 (when the New York real estate boom collapsed) he designed some 15 apartment buildings a year, mostly in the luxury category, and such familiar New York landmarks as the Ritz Tower, the St. Moritz, the Dorset, the Hotel St. George, the Fifth Avenue Hotel and the Belmont Plaza.

"Like many others, the firm had some tough periods during the thirties and again during World War II and the immediate postwar years. Emery kept it going, even when Julian and Richard had to find work elsewhere. When Richard came back from three years of Navy service in 1945, a new practice had to be built; and the new generation of partners seems to have done it." . . . And now it is our sad duty to report the death on January 6, 1964 of **Sterling H. Morrison**, 16 Alden Road, Hingham, Mass. He graduated in Course II.—**Hermon S. Swartz**, Secretary, Construction Publishing Company, Inc., 27 Muzzey Street, Lexington, Mass.

'30

This month we have returns from three of our eight **Smiths**, Greg, Myron and Walter. As most of you know, **Greg** is president and general manager of East-

man Gelatine Company in Peabody, Mass., and did an outstanding job on the Second Century Fund. In addition to his work on the M.I.T. Fund Board and Alumni Council, he is president of the Hospital and a board member of the Peter Bent Brigham Hospital and of the World Affairs Council of Boston. His son David graduated from Harvard in 1958 and is now married and has two daughters. Greg urges all of us to "support the world needs of M.I.T."

. . . **Myron Smith** is director of sales of General Radio Company in West Concord, Mass. He has two daughters: Laura, who graduated from The Rhode Island School of Design this year, and Bonney, who is at Elmira College where she is a classmate of **Hermon Scott's** daughter (see below). . . . **Walter Smith** is owner of Process Equipment Company of Tulsa, Okla., a manufacturer's representative for custom-built heavy equipment for the petroleum, petrochemical, natural gas, power and air-conditioning industries. He is active in the Engineers Society of Tulsa, A.I.Ch.E. and M.I.T. Club of Oklahoma. He has a married son and daughter and five grandchildren. . . .

John Scheuren, who is a vice-president of Metcalf & Eddy, Ltd., is now living in Trinidad, where he is doing consulting work in the Caribbean area on water supply, irrigation and sewerage. Oddly enough, this information was on my desk when I returned from Trinidad in March. Sorry to miss seeing you, John. Those who attended the 30th Reunion will recall that John and Margaret took first honors for the number of children—seven. The No. 1 child, Fred, graduated from Tufts and is with I.R.S. in Washington. Marie is married and living in Florida and Jeffrey is at University of Arizona. The four younger children are in school in Port of Spain. John is one of our more traveled classmates. He has spent considerable time in the Arctic and Antarctic over the last 12 years and is a member of the Explorers' Club of N.Y. and the Arctic Institute. In a recent month he managed to visit St. Lucia, New York, Las Vegas, Los Angeles, Dallas, Cocoa Beach and Miami with stops at intervening points. He listed research in clay minerals and ceramics as his hobby, although it is difficult to see how he finds time to fit a hobby into his regularly scheduled activities.

A number of **Hermon Scott's** manifold activities have been previously reported in this space, including the fine work he has done in sponsoring a program for training mental patients and the physically handicapped in the assembly of electronic equipment, as well as providing employment for some of the trainees. In addition to his principal job of running H. H. Scott, Inc., he is a trustee of the Union Savings Bank of Boston, the Powder Mill Realty Trust and the Boston Opera Group; governor and former president of Audio Engineering Society; fellow of I.E.E.E., the Acoustical Society of America and Audio Engineering Society; and Recipient of the Potts Medal of the Audio Engineering Society. The Scotts have two daughters: Priscilla, who is a junior at Elmira College, and Jane,

who is a junior at Cushing Academy. . . . **Saul Sigel** is vice-president and technical director of N.K.M. Knitting Mills, Inc. in Manchester, N.H. His first wife passed away a number of years ago, and he has remarried. His present wife, Dr. Selma Deitch Sigel, is a pediatrician who administers the children's clinic of the Boston Medical Center and practices pediatrics in Manchester. The Sigels have five children: Roberta, who graduated from Brandeis and is a remedial reading teacher; George, who graduated from Harvard and is at Tufts Medical School; Marjorie, who is a freshman at Goddard College; and two younger children at home. . . . **C. Haskell Small** has a real estate and investment management business in Washington, D.C. He is also a director of the First National Bank in Washington and vice-president of B.G.S. Company. His extra-curricular activities include being president of the brotherhood and member of the board of managers of the Washington Hebrew Congregation; former master of Masonic Lodge-Hope #20 and president of the Masters Association; trustee of the Jewish Foundation for Retarded Children and of the Merit Boys Club; and member of the executive board of the National Federation of Temple Brotherhoods. The Smalls have two children: Sherry, who will enter University of Wisconsin next fall, and Haskell, who is a 10th grader, a ham operator (K3SGO) and has his eye on M.I.T. and an electrical engineering career. . . . Two of our classmates recently acted as official representatives of M.I.T. at ceremonies at other schools: **Ted Ross**, at the inauguration of Edward C. Thoma as President of Indiana Institute of Technology, and **Reg Bisson**, at the dedication of Memorial and Meserve Halls at the New Hampton School in New Hampton, N.H. . . . Changes of address: **James Dadakis**, 107 Bell Road, Scarsdale, N.Y.; **W. Howard Reed, Jr.**, 1010 Riverton Road, Cinnaminson, N.J.; **Robert Rypinski**, TRW Space Technology Labs, 7001 North Atlantic Avenue, Cocoa Beach, Fla.—**Gordon K. Lister**, Secretary, 530 Fifth Avenue, New York 36, N.Y.; Assistant Secretaries: **Charles T. Abbott**, 26 Richard Road, Lexington 73, Mass.; **Louise Hall**, Box 6636, College Station, Durham, N.C.; **Ralph W. Peters**, 16 Whitestone Lane, Rochester 18, N.Y.

'32

The election of **Keith Smith, Jr.**, Course II, as president of J. M. Ney Company, precious metal manufacturers, has been announced. He and his wife live in Farmington, Conn., have a son at Harvard, and a married daughter and a grandson. . . . **Victor M. Gelin**, Course XVI, who is manager of methods and standards, Pigments Department, E. I. du Pont de Nemours and Company, discussed "Motivating Supervision and Employees for Cost Reduction" at the Worcester, Mass., Chapter of the Society for Advancement of Management. Vic-

tor has been with DuPont since 1957 and has been active in S.A.M. affairs in Baltimore and Wilmington. . . . **Dr. Kurt J. Heinicke**, Course VIII, heads the Heinicke Instruments Company of Hollywood, Fla., which has for many years supplied decontamination equipment to the medical profession. Kurt has been demonstrating the efficiency of his equipment in critical contamination control centers such as the J. F. Kennedy Space Center. . . . **Carl J. H. Wahlstrom**, Course IX-B, has been promoted to senior staff engineer in the Design Engineering Department at Humble Oil and Refining Company. Carl and his wife live at 201 Oak Shadows, Baytown, Texas. He is regional vice-president of the M.I.T. Alumni Association, an officer of the Roseland Oaks Civic Association and a registered professional engineer in the State of Texas. . . . Professor **Herbert H. Uhlig**, Head of the Corrosion Laboratory at M.I.T., recently discussed "Stress Corrosion Cracking of Steels" at the meeting of the Institute of Metals Group, A.I.M.E., at Carnegie Institute of Technology, Pittsburgh. . . . Professor **Albert G. H. Dietz**, Professor of Building Engineering at M.I.T., reviewed the M.I.T. educational curriculum in the building field as a whole, including engineering and architecture in the February, 1964, issue of "The Construction Specifier." . . . We have been notified of the death of **Kenneth H. Klopp**, Course XV, on February 28, 1964.—**Elwood W. Schafer**, Secretary, Room 10-318, M.I.T., Cambridge 39, Mass.

'33

Another country heard from; **Jim Vi-cary**, Erie, Pa., wants to become a charter member of the Grandfathers' Club, or whatever we call it. He is now tied with **Bob Smith** with three, and is expecting another momentarily. I have four myself, and, like Jim, I had little to do with the performance. . . . How the memories surge up with these notes. Well I remember Bill Weston stopping the noise and asking, "Who is braying in the baritone or brass section of this club?" Bill's expression alluded to a common fault that some of us had—singing too loud when we found something to sing that we understood or liked real well. I will not say that Jim was the culprit, but, he was over in that direction. Son Chuck, Class of '58, is company treasurer, it says here; reminds me just a bit of Tubby's famous speech of long ago. . . . Just had a very short and sweet note from our president. He wants me to mention the New London informal get-together in the class notes. I just did, although the meeting will be past by three weeks by the time these notes appear. . . . Again we hear from our Chicago correspondent, **Cal Mohr**. This paragraph will be all Cal's, and almost verbatim. First, we hear from **Mal Mayer**, President of Schwarz Labs, and internationally known brewer engineer. Cal's outfit is co-operating with Schwarz, developing, manufacturing and selling a

device connected with mash filters. Mal was in Africa again in May, presumably on brewery business, although this is not clear in my mind from the dispatches. Could you send us a half-page on this Africa business? Both Mal and Cal want to know whatever became of the old soccer players of the early undergraduate years. This opens it up for at least 11 of you chaps to get your names in print; just drop me a line, as Cal's cry is plaintive. . . . From Cal again: **Otto Putnam** and **George Garcelon**, Superintendent and Chief Chemist, respectively, of Althouse Chemical Company, caught Cal's attention. Otto wrote an article for "Chemical Processing" entitled, "A Ton of Ice for Less Than a Dollar"—this for the dyestuff industry! The price is surely attractive; one wonders how close we are getting to cheap ice for bars in Exeter, N.H., and Hillsboro Beach, Fla. Otto seems quite prolific in his production of trade articles for his industry, and Cal hears that Althouse is planning to keep Otto busy as they are building a new plant for the superintendent. Where? It does not say here. Come on, Otto, how about your letting us in first hand. Also, George Garcelon, don't allow Otto to grab all the publicity. Just send in your story, and I will work it over for you.

Cal heard about another shrinking violet, **Bob Seyl**, author of a speech (and article) on the "Seyl Corrosion Evaluation Theory and Method," given before the National Association of Corrosion Engineers, in Chicago. Bob is not only a consultant in this field, but also an engineer and inventor. He has, over a period of better than 14 years, developed equipment for quick and accurate determination of corrosion rates which promises to take a place in the corrosion field similar to the position held now by the pH meter in the field of solutions. Bob reports that both he and his good wife are well, and quite active in school and civic work, and that they have a teenage daughter who appears to be the right stimulant for them. Bob is much nearer the Grandfathers' Club than he realizes. . . . All this news came thanks to good old Cal Mohr. I hope you fellows appreciate him as I do. He muses a bit on the aching back, et al, which goes with tulips, vegetables, etc., in his back yard. I also enjoy these items, but the yard man gets the aching back, if any. I get the vegetables and berries.

Around April 1, I sent out 25 return postal cards to classmates, names chosen at random, but location chosen carefully so as to have one or two reach all sections of the country. The cards were more pleas for information, all stamped and return addressed. Less than two weeks later, the first reply card came back, from Ventura Calif., signed by **Burton Ellis**. Space will not allow me to include all Burt tells me, as he got more on that card than he would have using a typewriter. He is branch manager of the U. S. Navy's Bureau of Ships and Docks, for their complete Emergency Production Program of Planning. Burt says that many classmates must see and use some of the planning studies put out by his outfit; if any of you fellows do, drop Burt

a line, and send me a copy. He is already planning and looking forward to his retirement in seven more years, at which time he intends, with his good wife, Amy, to travel. Burt's son has completed a rather extensive education: he was graduated from the University at Redlands, Calif., Johns Hopkins, and studied in Salzburg, Austria, and Bologna, Italy. He is now vice-consul general for the United States at Munich, Bavaria, Germany. Incidentally, about the time that Burt reads this tome, and at Burt's suggestion, I will be phoning that boy in Munich. I am taking my daughter, Phyllis, her husband, and 11-year-old son, and his cousin, Warren C. Henderson, also 11 years, to Europe for eight weeks this summer, sailing on the 'S. S. France' June 25. Leona is not going with us, as she has seen the places where we will go, many times, and the trip will be a bit arduous. We are three Warrens in a row; Warren J., Warren S., and Warren C. My son is State Senator from Sarasota County. So much for my plug. Burt finishes by letting us in on a little secret; it seems that the climate in Ventura is ideal, and the view of the Pacific is gorgeous. This may not be too much of a secret, but I will have to go along with him, although there is evidence that some folks prefer Florida, what?

I have a very brief note from **Ellis Littman**, St. Louis. I have always considered Ellis to be one of the better looking members of the class. He came through with no information whatever, which is about par. He wrote to discuss an article he had read which he seemed to like. We are always glad to hear from Ellis, and the class has no more faithful friend. . . . I have a thought that I like more and more. We have three or four members of the Grandfathers' Club, of record, but we have had no mention of a Grandmothers' Club, and, it is high time we got one started. The number of girls who took degrees when we did is small in percentage, but I will wager that there are four times as many of them as you fellows think. Girls, you are just as much a part of our class as any man. There must be some grandmothers among you, and I surely would be delighted to hear from you, with details, as well as from those who are not grandmothers yet! All grandmothers who report in on or before December 31 will be charter members, and the first three that send in their applications, will receive, quickly, flowers suitable to the occasion. How's that! And I will wager that it will be the first time that any of you have received flowers for having attained that advanced status. Let's go, now, girls; this is no gag. We mean every word of it.

We are saddened to hear of the passing of one of our classmates, **Michael A. (Mike) Eitelman**, in March of last year in Chester, Va. I sent one of my random cards to Mike with no present knowledge of the facts. Our belated sympathy goes to his family, most sincerely. Mike was a graduate of Course V. . . . We are further saddened on hearing through Walter Hokanson of the passing of **Frank K. MacMahon**, of Media, Pa., I have no further details and can only pass on

to Frank's family the sympathy of his classmates. Frank was in Course XVI.

In response to one of my random cards, I received a long letter from **Hugh W. MacDonald**, chock full of news. Hugh is deputy director of the Davidson Laboratory at Stevens Institute of Technology, and assistant director of all research at Stevens. Hugh lives at "Greenway Steading," Green Brook, N.J.; the "Steading" is a converted barn where George Washington's horse slept. George, it seems, could do better (than Hugh?) and slept elsewhere. One of the MacDonalds has a real sense of humor, maybe both, but it could be Hugh's lovely wife, Barbara. Hugh also has Leah, a smart daughter, who this June graduates from the Foreign Service School at Georgetown University. The MacDonalds have a summer place at Cozy Harbor, West Southport, Maine, and a 35-foot Scotch Sloop named "Nyatonga." All sailors and others are invited to stop in at Cozy Harbor, where the hospitality is unsurpassed, we hear. Hugh, I know you pass seven miles from Exeter, unless you fly. Just use the phone, as I may not be waiting for you.

Now, Classmates, this is the last set of notes until November. You will just have to find something else to read. My address is at the bottom, and it may be used for a number of purposes, the most important, of course, is for the purchase of Aberdeen-Angus breeding cattle. It may also be used for sending in information such has been requested heretofore. And, it may be used for personal calls. Surely some of you go to the White Mountains and Maine summers. We are only seven miles from the N.H. Turnpike and one mile south of the Exeter bypass, on Route 85. A good time to call is at 4:00 P.M., allowing an hour to see some of the finest Angus in the east, and another to sit on our big porch (piazza to you Yanks), and enjoy a stimulating drink, whether it is just Leona and myself, or 50 of the faithful. This is a genuine invitation, and you will not be asked any nicer as time goes on. If you drop in and find no one on the porch, you may well assume that I am on some other porch for exactly the same reason. Perhaps a phone call from the turnpike will save 14 miles of a disappointing ride: Phone 772-2333. I must bid you an "Au Revoir" until the November issue.—**Warren Henderson**, Secretary, Fort Rock Farm, Exeter, N.H.

'34

These notes were written on R-day minus 31 and you are reading them on R-day plus about 20. Those of you who could not attend our 30th Reunion on June 12-14 may catch up with the news in the November issue. . . . These notes complete the obligations of the secretaries listed below. Your new secretaries elected at the reunion class meeting will need your support.

Norman B. Krim of Newton, Mass., has been appointed to serve as national chairman of Clark University's 1964 Parents Fund Program. This is his second term

as national chairman. This unique program was established in 1959 to provide an opportunity for parents of Clark students to join with alumni, friends, business and industry in the financial support of the university. Since 1959 Clark parents have given a total of \$18,500 to the university. Mr. Krim, formerly president of Radio Shack Corporation of Boston, and vice-president of the Raytheon Company of Waltham and Lexington, is an electronics industry management consultant in Boston. In 1945 he was the recipient of a Certificate for Exceptional Service from the U.S. Naval Ordnance Department for his work on the proximity fuse. . . . **Donald K. Lister** was elected an assistant vice-president in the Personnel Department of the Chemical Bank New York Trust Company. Congratulations! . . . **Wilfred D. MacDonnell**, President and chief administrative officer of the Kelsey-Hayes Company, has been elected to the board of directors of Manufacturers National Bank of Detroit. In addition to these duties he is a director of the Michigan State Chamber of Commerce, the Greater Detroit Chamber of Commerce, the National Board, Detroit Chapter of the M.I.T. Association, and Junior Achievement. He and Mrs. MacDonnell live in Birmingham and have a daughter and two sons.

Dr. Robert C. Gunness, Director and Executive Vice-president of Standard Oil Company of Indiana, has been elected a life member of the M.I.T. Corporation. . . . **Samuel A. Groves** has been elected to the corporation of Northeastern University. He is president and director of United Carr Fastener Corporation, a director of the First National Bank of Boston, Liberty Mutual Insurance Company, Boston Manufacturers Mutual Insurance Company and the Mutual Boiler and Machinery Insurance Company. . . . **Dr. Robert W. Price** has been appointed manager of the Farm Chemical and Insecticide Division of the S. B. Penick Company. He is widely known in the industry through his work as head of Penick's Research Department. Among scientists in his field he is recognized as an authority on pyrethrum and rotenone formulations and as author and co-author of several published works on these and other subjects. . . . It is with regret that we received news that **Donald W. Haarman** died in an airplane crash on March 1, 1963, while returning from a trip to Puerto Rico. Our very deepest sympathy go to his family.—**H. E. Thayer**, Secretary, 415 West Jackson Road, Webster Groves 19, Mo.; **G. K. Crosby**, Secretary, 44 Deepwood Road, Darien, Conn.; **M. S. Stevens**, Secretary, 9 Glenfield Road, Barrington, R.I.; **J. P. Eder**, Secretary, 1 Lockwood Road, Riverside, Conn.

'35

We start off this month with a letter from **Sid Grazi** from Denver as follows: "I must admit to being remiss in getting a letter off to the class, at least to the extent of an acceptance speech for re-

ceiving the President's Cup (it arrived in good shape, Leo, and adorns a place of honor in my office) and with it, the championship of the Class of 1935's Third Annual Golf Tournament. I accept with humbleness and humility and more especially with trepidation for the comers whom I will have to take on. We have had a long, long, winter in Denver with very little opportunity to play golf. Since I am trying to help build Denver into a great metropolis, I have not even had the time to practice putting indoors on a rug. All of this is very unusual for Denver (The Chamber of Commerce always says this) and I am looking forward to the coming summer when we can get back into the swing of outdoors. I hope some of my competitors will wend their way in this direction so that we can play some of our matches face to face. We can, then, on the 19th hole retire to the clubhouse and with a stein on the table and a good song ringing clear, indulge ourselves in some nostalgia and perhaps reach the conclusion that compared to later life maybe 'Tech is not hell.' We recently were awarded a substantial contract for the construction of a piggy-back trucking terminal for the Rio Grande Motor Ways, and it seems that there are several M.I.T. men involved. John Ayer, '36, is one of the top men in the Denver and Rio Grande Railroad organization. Bob Nedell, '40, is the architect-engineer for the job and yours truly '35 is the president of Titan Construction Company which is building it. The president of the Rio Grande Motor Ways, who incidentally was our commandant in the reserves, has kiddingly expressed concern for the job being monopolized by M.I.T. men. That's about it for now. I will try to get some more news to you in the near future." Many thanks for taking the time to write, Sid; it was good to hear from you. We all wish you luck (but not too much) in your quest for a second leg on the cup.

Each of you who have not already seen it should trot down to your library and get them to pull out the March issue of 'Public Works Magazine' for there is **John E. Kiker, Jr.** on the cover in full color. John is professor of civil engineering and head of the Sanitary Engineering Section of the University of Florida. Inside the magazine are two full columns about John, which I shall attempt to compress sufficiently so they won't get trimmed out of these notes (Review Editors have been very good to us so far). After receiving his bachelor's degree with us in 1935, John earned a master's in civil engineering from N.Y.U. In 1936 he became a district sanitary engineer with the New York State Department of Health in Poughkeepsie, where he remained 11 years, except for four years in the Army Sanitary Corps. He went to the University of Florida in 1947 as associate professor of sanitary engineering and became a full professor in 1949. He has published about 50 articles as the result of his work. One of his early research studies developed a simple formula for classifying soils with respect to their ability to receive sewage. This formula is now used as a standard in a number of communities today. John's activities in

technical societies are too numerous to list, but currently he is National Consultant in Sanitary Engineering to the Surgeon General of the U.S. Air Force. He married Mary Hayes in 1935 and they have three children: Joan, a student at Agnes Scott College; Carol, who is attending the University of Florida, and John E., 3d, in junior high school.

News from hither and yon. **Edward Loewenstein**, a regional chairman, is representing M.I.T. at the inauguration of the new president of the North Carolina College at Durham, Samuel Proctor Massie, Jr. . . . **Thomas F. Morrow**, Vice-president of Chrysler is Detroit's 1964 Torch Drive Chairman. . . . **Arthur R. Anderson** has been elected vice-president of the American Concrete Institute at its recent 60th convention. . . . Captain **Marvin H. Gluntz** has been named successor to Captain Landers as secretary of the Society of Naval Architects and Marine Engineers. . . . **John F. Keefe** has been appointed manager of research and advertising for the New Haven Railroad with which he has been associated since 1938. . . . The secretary wishes you all a pleasant summer and hopes and prays that some kind souls among you will write to him and make his last year coming up a very busy one for these class notes, because sure as death and taxes, there's going to be a successor elected at our 30th next June.—**Allan Q. Mowatt**, Secretary, 61 Beaumont Avenue, Newtonville 60, Mass.; Regional Secretaries, **Edward C. Edgar**, Kerry Lane, Chappaqua, N.Y.; **Hal L. Bemis**, 510 Avonwood Road, Haverford, Pa.; **Edward J. Collins**, 904 Merchandise Mart, Chicago 54, Ill.; and **Gerald C. Rich**, 105 Pasatiempo Drive, Santa Cruz, Calif.

'36

The mailbag this month contains the information that a speaker at the M.I.T. Student Section of the A.S.M.E. in February was **Constant L. Bouchard**, Manager of the Gas Turbine Department of the Ford Motor Company. His subject was "Automotive Engines of Yesterday, Today, and Tomorrow." An article about him also appeared in 'Gas Turbine.' Before joining Ford in 1946, he was with the Allison Division of General Motors. . . . 'World Petroleum' for March carried an article on "Geophysical exploration and space age technology" by **Milton Dobrin**, chief geophysicist of the United Geophysical Corporation and head of the Technical Services Department, Pasadena. Milt received his Ph.D. from Columbia in 1950. . . . Changes of address include Dr. **Frank L. Bracken** to Route #8, Box 235, Dallas, Texas 75211; **Edward L. Brewster**, Box 216, RFD #7, Pikesville 8, Md.; **Harry Foster**, Box 397, Lake Valhalla, Montville, N.J.; Dr. **H. Harvey Gass**, 529 Fisher Building, Detroit 2, Mich.; Lieutenant Colonel **John R. Grindell**, 2914 Stratford Drive, Augusta, Ga. 30904; Dr. **Harry C. Kelly**, North Carolina State University, Holladay Hall, Raleigh, N.C.; **Lawrence W.**

Sharpe to Sanders Associates, 95 Canal Street, Nashua, N.H.; **Walter Squires, Jr.** at Esso Research Engineering Company, P.O. Box 209, Madison, N.J.; **Edward Targonski** to 1007 Shellbark Street, Muncie, Ind.; **Jack A. Wintman**, 56 Glendale Road, Marblehead, Mass.; and **Harrison Woodman** to 53 Buena Vista Avenue, Rumson, N.J. 07760. I am not sure I dare report that these notes were written in a hotel room in San Francisco following a visit to my daughter in Seattle. We spent two beautiful days on the Olympic Peninsula and have had beautiful days in the bay city, which I have been too busy to enjoy. The First Continental Convention of the Unitarian Universalist Women's Federation was the reason for my trip.—**Alice H. Kimball**, Secretary, 20 Everett Avenue, Winchester, Mass. 01890.

'37

Herbert K. Weiss was named group director of plans development and analysis in the System Planning Division of the Aerospace Corporation, El Segundo, Calif. Weiss went to Aerospace from the Aeronutronic Division of Ford Motor Company, where he served as manager of military systems planning and operations research and as manager of advanced systems development in tactical weapons. He is a past member of the U.S.A.F. Scientific Advisory Board and a consultant to the director of defense research and engineering. A founding member of the Operations Research Society of America, he served as its vice-president in 1958-1959. He is a fellow in the American Association for the Advancement of Science and a senior member of the American Institute of Aeronautics and Astronautics and the Institute of Electrical and Electronics Engineers. Herbert and Ethel and their two children live in Palos Verdes Estates, Calif. . . . From the Paper Mill News we learn that **Lyle C. Jenness**, Louis Calder Professor and Head, Department of Chemical Engineering, University of Maine, Orono, had just joined Paper Mill News' Editorial Advisory Board. He became an instructor in mathematics, University of Maine, 1923-1926, an instructor in chemistry and chemical engineering, 1926-1928, and rose to become head of the Department of Chemical Engineering in 1947. In TAPPI he is a past chairman of the Chemical Engineering Committee and presently is chairman of the Training and Education Committee. He is a member of A.I.Ch.E., A.S.E.E., N.S.P.E., and Sigma Xi. He was recipient of The University on Maine Pulp and Paper Foundation Honor Award in 1954 and the Louis Calder Distinguished Professorship in 1962. He is co-author of the University of Maine Industrial Lectures and has authored about 20 technical papers.

The appointment of **Sydney B. Karofsky** of Brookline, Mass., as chairman of the newly created Art Commission of the Hebrew Rehabilitation Center for the Aged, Roslindale, Mass., was announced in Feb-

ruary. Mr. Karofsky is a widely known designer and consultant and is a member of the Center's Board of Directors. The Art Commission was created to encourage members of the community to contribute or loan paintings and other works of art to the center to provide an environment that will enhance the beauty of the aged residents' surroundings. Sid is president of Northeastern Wallcoverings, Inc., and has served as interior designer and color consultant for the center's specially designed furniture. He served as the designer for the interiors of the new Towers Dormitory of Boston University, Themis House at Brandeis University, and Boston University's Hillel House, plus leading industrial firms. His wife Sylvia is well-known in local charitable organizations and busies herself at Walls Unlimited, a design studio in Boston. One son, Peter, is a second-year student at Tufts University Medical School, and another son, Paul, is a sophomore at Bowdoin College.

The New York Daily News Record is running a feature article on New England. The issue devoted to Boston quotes General **James McCormack**, Vice-president of M.I.T.: "The scientific industries attracted to this area by the think factories along the Charles, have saved this area . . . A good part of New England, Massachusetts and up into New Hampshire and over into Rhode Island have been given new life by the scientific industries that have sprung up since World War II. . . Yes, we're stirring now . . . the NASA center will be a tremendous thing for the whole area. . . There is already a \$100-million payroll in the section, not counting M.I.T." The article describes McCormack as "a slight, well-dressed man who puts you in mind of a young Duke of Windsor. He works in a large, tastefully furnished office amid constant interruptions. As he speaks in an unruffled manner, the noise of building is a constant background reminder of the many projects under way at M.I.T. It is symbolic of the part this unusual institution plays in the daily life of the region." . . . Allan Mowatt, '35 Manager Product Development, Electronics Metals and Alloys, Inc., of Attleboro, Mass., wrote a note saying "Thought you could use this about an ex-oarsman and classmate of yours." The clipping reads: "Chicago. **Joseph F. Keithley** has been named to represent the Scientific Apparatus Makers Association here, on the National Electronics Conference Board. Mr. Keithley is president of Keithley Instruments, Inc., Cleveland."

Notes from classmates. From **Nancy (Overton) Klock**: "Currently work for the University of Hartford, teaching electrical engineering. Oldest son, Stanley, has given me two grandsons. Second son, Peter (M.I.T., '65), is getting married June 13. Third son, Stephen, is freshman at Stetson University in Deland, Fla." From **Joe Heal**: "Not much doing except that we have a French exchange student staying with us this year." From **Winthrop Comley**: "Am now living in Concord, Mass. Work for Stone & Webster Engineering Corporation in Boston as a heat transfer specialist assigned to the Chemi-

cal Division. Also consulted by other divisions on heat transfer problems. Moved from Tulsa, Okla., in November, 1963, have resigned from Yuba Heat Transfer Corporation." From **Dick Young**: "New address as of January, 1962, 3 Falmouth Road, Wellesley. Saw **Art Hunt** and **Wayne Pierce** in Milford, Mass. Those tycoons are in business again making ski lifts." From **Norm Matthews**: "Now with Inco., 67 Wall Street, New York City, Group Leader, Ferrous Development and Research. Now that our oldest is married (and I am now a grandfather), and the second is in college, we have signed for an exchange student for the coming year, Genevieve Leippe from Paris, who will arrive in July and attend high school as a senior with our third child, Judith." . . . That's all. Have a wonderful summer!—**Robert H. Thorson**, Secretary, 506 Riverside Avenue, Medford, Mass.; Professor S. Curtis Powell, Assistant Secretary, Room 5-325, M.I.T., Cambridge, Mass.; **Jerome Salny**, Assistant Secretary, Egbert Hill, Morristown, N.J.

'39

Although our 25th Reunion will be history by the time this column appears, during this mid-May writing I obviously cannot write about classmates whom I won't be seeing until June 13. Nevertheless, here are two reunion-generated items forwarded by **Aaron White**, Editor of the Reunion Class Book. Both items were received too late for Aaron to include. **G. Arthur Morrell, Jr.**, XV, wrote that his new affiliation is with Dyna-Empire, Inc., Garden City, Long Island, N.Y. Art also noted that he is temporarily living at 273 Windsor Parkway, Hempstead, Long Island. . . . **Charles P. Washburn, Jr.**, VI, wrote that he is treasurer of the C. P. Washburn Company, in Middleboro, Mass., grain dealers and building materials. In addition, Charlie started a plumbing supply business in 1947 and bought a lumber yard in 1951. He and Ida have two children, Charles, 17, a senior at Mt. Hermon, and Margaret, 14, a high school freshman. In his "spare time," Charlie is on the board of directors of the local Y.M.C.A., and a past president of the Y, first vice-president of the Lions Club, chairman of the board of trustees of the Central Congregational Church, trustee of the Middleboro Savings Bank, and member of the Middleboro Housing Authority, "and that's enough." His address: Fairview Mounted Delivery, Middleboro, Mass.

For current news items, **Paul E. Sandorff**, XVI, sent along a mimeographed notice from his M.I.T. class as a means of keeping posted. Paul is a professor in the Department of Aeronautics and Astronautics, and is on the staff for the interdepartmental courses in systems engineering. Along with four other professors, Paul helped organize 27 graduate students from six departments into a course in systems engineering and to create a preliminary design for an Advanced Orbiting Astronomical Observatory. The

mimeographed notice announced an oral presentation of the design studies, in Kresge Auditorium, and invited all who were interested in engineering education. . . . **Dr. Robert H. Cotton**, X-G, director of research of the Continental Baking Company, Rye, N.Y., has been elected to fellowship in the American Association for the Advancement of Science. He has also been named president-elect of the American Association of Cereal Chemists. Continental's research laboratories service the Wonder Bread and Hostess Cake operations, and also are engaged in product development and quality control research for the company's Morton Frozen Foods Division. Dr. Cotton is active in the American Chemical Society, the Institute of Food Technologists, the American Institute of Baking, and the Industry Advisory Committee of the Nutrition Foundation. He lives at 56 Intervale Place, Rye, N.Y.

Mark N. Curgan, V, has joined the Hart Products Corporation, 1440 Broadway, New York, manufacturers of textile chemicals, in the capacity of research chemist for product and process development. Mark is a member of the American Chemical Society and the American Association of Textile Chemists and Colorists. He was formerly with Heyden Chemical Company and L. Sonneborn & Sons. He lives at 9 Brentwood Drive, Verona, N.J. . . . **Edward P. Skralskis**, I, is executive vice-president of Omark Industries, Portland, Ore. Omark is one of the country's important producers of cutting and fastening devices for the timber harvesting and construction industries. It also makes saw chains, stud welding equipment, and powder-actuated tools, as well as diamond blades and drills. . . . **Robert C. Casselman**, XV, has been elected a vice-president of Boston Safe Deposit and Trust Company, according to a news clipping from the Boston Herald. . . . **Solomon Baker**, X, of Newton Highlands, Mass., has been named chairman of the Commission on International Affairs of the New England Region, American Jewish Congress. In business, Sol is in charge of New England sales for Rogers Corporation, of Rogers, Conn., and is treasurer of LeVine and Baker, Inc., home builders. He is also chairman of the board of Berris Motels, Inc., Danielson, Conn.—**Oswald Stewart**, Secretary, P. O. Box 1238, Moravian Station, Bethlehem, Pa. 18018.

'40

For the second time in the 14 years your present secretary has handled the Class News for The Review, there was no column last month. Not only were there no letters from classmates, but the usually reliable clipping service also failed to come forth with information. Things are a bit better this month with news that **Peter Leckie-Ewing** has been appointed chief metallurgist of UTD Corporation, formerly Union Twist Drill Company. . . . **Karl Fetters** is also in the news as the new president of the American Insti-

tute of Metallurgical Engineers. Karl at present is also vice-president for research and development of the Youngstown Sheet and Tube Company. . . . **Frank Plumley** is now manager of central purchasing for West Virginia Pulp and Paper Company. Most recently, he had been associated with Olin Mathieson. . . . A two-year grant of \$100,000 has been made by the Olivetti Foundation of Boston to the Joint Center for Urban Studies of M.I.T. and Harvard for basic research on problems of urban and regional development. The Olivetti Foundation was established in 1957 by our classmate, **Dino Olivetti**, who is vice-president of C. Olivetti and C., SpA, the largest manufacturers of office equipment in Europe. With our 25th Reunion coming up within a year, it is indeed fitting that classmates should remember the Institute.

Julius Molnar is wearing several hats these days. He is not only executive vice-president of Bell Telephone Laboratories, but now is a member of the board of trustees of American Optical Company. . . . **Henri-Paul Koenig**, who is a member of the Department of Physics at Laval University in Canada has been named by the National Council of Research in Ottawa as scientific attaché of Canada to France. The function of the scientific attaché of Canada to France was born because of the great interest in maintaining communications between the two countries on the developments of science. (This last item came to your secretary by way of a clipping from a French newspaper. Since his knowledge of French is limited to the one year of French taken during his freshman year at Tech, he apologizes for any errors which may have resulted from translation of the item). . . . **Malcolm Vosburgh** is now on the staff of the Institute for Defense Analyses, a non-profit organization doing scientific, economic and operations research studies, primarily for the office of the Secretary of Defense. . . . An interesting booklet was received during the last month by your secretary on the architectural achievements of **I.M. Pei & Associates**. It includes pictures and discussions of some of the more recent architectural accomplishments. . . . I hope you all have a pleasant summer and trust that you will start making plans to attend our reunion at the Institute next June so that we will have the biggest and best ever.—**Alvin Gutttag**, Secretary, Cushman, Darby and Cushman, American Security Building, Washington 5, D.C.; **Samuel A. Goldblith**, Assistant Secretary, Department of Food Technology, M.I.T., Cambridge, Mass.

'41

A Spring Get-Together for the Northeast area was held at the home of **Edward and Mrs. Marden**, 61 Bullard Road, Westton, Mass., on Friday, April 24 under the able chairmanship of **Irving Stein**. The fine cocktails and dinner were exceeded only by the stimulating interchange of ideas among those present. **Zach Abuza's**

color film of scenes from the 15th Reunion at the Mayflower Hotel, Plymouth, Mass., was shown and provided an enjoyable interlude for reminiscing. Those attending the Get-Together were: Everett and Mrs. Ackerson, Edward and Mrs. Beaupre, Michael and Mrs. Driscoll, Luke and Mrs. Hayden, George and Mrs. Hite, Walter Kreske, Mitchell and Mrs. Marcus, Edward and Mrs. Marden, John and Mrs. MacLeod, Earl and Mrs. Meyers, and Reid and Mrs. Weedon. . . . **Everett R. Ackerson**, Plant Manager of the Deecy Products Division of Reichhold Chemicals Inc., Cambridge, Mass., has been promoted to general production manager of the Plasticizer Division of that company which includes Rosett Chemical Company of Newark, N.J.

Howard J. Samuels, President of Kordite Corporation, is in the news again in connection with the announcement of "Tri-Kor" a new product now being produced and marketed by the company. This new product consists of a core of polypropylene wrapping film coated on both sides with medium density polyethylene (see Modern Packaging, January, 1964, p. 50). Kordite Corporation, a flexible packaging producer based in Macedon, N.Y., was established in 1946 by Howard and his brother in an abandoned old red schoolhouse. Their first product was a vinyl-coated clothesline which met with immediate consumer success. However, this profitable clothesline market vanished with the overwhelming acceptance by homemakers of the automatic clothes dryer. Samuels then undertook the extrusion of polyethylene film with freezer and household bags becoming the biggest part of Kordite's business by 1951-1952. Under Howard's leadership, Kordite has been remarkable for its ability to retain an independent position through three mergers, starting in 1955 when part of the company was sold to Textron. Three years later, both Kordite and the Textron parcel were purchased by National Distillers and Chemical Corp. Ultimately, all of Kordite became a division of Socony-Mobil, which has moved all of its plastics research and development facilities to Kordite's home base, Macedon. The company now rings up yearly \$40-50 million in sales. Howard is also active in civic affairs, fund raising and politics and has made a first stab at public office, that of governor of New York state as a contender, though unsuccessful, for the Democratic nomination at the time of the last election. He lives near Canandaigua with his wife and eight children, but confesses that with constant traveling both here and abroad, plus determined effects to succeed in politics, he must almost re-introduce himself to his family whenever he can get home for even a brief time.

James S. Thornton, sales manager of the Extrusion Coating Division of the Frank W. Egan and Company, Somerville, N.J., has had his duties expanded to include the position of sales manager of the firm's Paper Converting Division. Jim joined Egan as sales engineer in 1956. Prior to joining Egan, he served as west coast manufacturer's representative

for the firm's machinery. Before that he served as sales engineer for the Lamson Corporation, Syracuse, N.Y., and Downingtown Manufacturing Company, Downingtown, Pa., respectively. A native of Summit, N.J., Jim currently is a resident of Princeton, N.J. A member of TAPPI, he has served as chairman of that organization's extrusion coating committee. . . . **John W. Meier**, chief engineer of industrial products of Hamilton Standard, Springfield, Mass., presented a technical paper at the American Society of Tool and Manufacturing Engineers Conference held in Detroit last April. . . . **Charles W. Hargens, 3d**, Educational Counsellor at the Research and Development Labs of Franklin Institute, Philadelphia, represented M.I.T. at the inauguration of William Walsh Hagerty as president of Drexel Institute of Technology on May 12, 1964. Charles is president of the M.I.T. Club of the Delaware Valley.

Raymond W. Ketchledge, director of the electronic switching laboratory of Bell Telephone Laboratories, was recently a guest speaker at the Naperville Chamber of Commerce during its spring meeting at the Cress Creek Country Club, Naperville, Ill. Ray joined the Bell Laboratories in 1942, the same year in which he received both his B.S. and M.S. at M.I.T. From 1942-1946 he was associated with military development in the field of infra-red detection and underwater sound. The following six years he participated in the development of a submarine cable system. In 1953 he was appointed electron tube development engineer with responsibility for gas tube and storage tube developments. His next assignment was that of development engineer for switching systems in electronic memories. He served as assistant director of switching systems development from 1956 to 1959, when he was promoted to the post he now holds. . . . Professor **Stanley Backer** spoke on the topic "Mechanics of Rupture in Blended Yarns" at the spring meeting of the Fiber Society which was held at the Sheraton-Barringer Hotel in Charlotte, N.C. . . . **Franklyn W. Phillips**, Director of the space agency's Northeast Office in Boston, made news recently by being praised for his calmness and composure during the political storm that ended with the selection of the Boston area as the site for NASA's \$56-million Electronics Research Laboratory. The report attributes his calmness to his engineering outlook, namely that of viewing any situation "as a curve rather than a lot of peaks." Franklin recently completed 21 years with the space agency and its predecessor, the National Advisory Committee for Aeronautics. From his first NACA post at the Langley Research Center in Virginia, he rose to special assistant to NASA chief James E. Webb in 1961, prior to his assignment here. In the intervening years, he served at NACA's Lewis Research Center in his native Cleveland and on the director's staff at NACA headquarters in Washington. With the establishment of NASA in 1958, Franklin became special assistant to Dr. T. Keith Glennan, its first admin-

istrator, and served also as acting secretary to the President's National Aeronautics and Space Council until early 1960. Mr. Webb named him to establish NASA's Northeast office in September of 1962, approximately four months prior to the disclosure of plans to set up an Electronics Research Center here. He now lives in Wellesley with his wife, a 16-year-old son and 14-year-old daughter.

Dr. **Howard O. McMahon**, a member of the board and formerly executive vice-president of Arthur D. Little, Inc., was elected president of that company at its recently held annual meeting. Howard joined Arthur D. Little, Inc. in 1943. A major contributor to the field of low-temperature physics, he was science director of the company and has served as head of the Research and Development Division. . . . Rear Admiral **William B. Sieglaff**, USN, has assumed command of the First Naval District in Boston, relieving Captain Blish C. Hills, USN. Admiral Sieglaff comes to Boston from Washington, D.C., where he was director of personnel, Joint Staff of the Joint Chiefs of Staff. He was twice awarded the Navy Cross, the Navy's highest award, for submarine action in World War II. He was also awarded the Silver Star Medal with two Gold Stars in lieu of additional awards, and the Legion of Merit with Gold Star in lieu of a second Legion of Merit. He also wears the Navy Unit Commendation ribbon. . . . **Hamilton Johnson** of Rittman, Ohio, has been appointed product planning and development manager, container division of the Packaging Corporation of America at its Grand Rapids, Mich., headquarters. Johnson was plant manager of the firm's container plant in Cuyahoga Falls before coming to Rittman in 1957, as container sales promotion manager. He joined the company in 1946 as an industrial engineer. He and his wife, Jane, have five children.

Dr. **Albert C. Zettlemoyer** of Lehigh University, was guest speaker on the subject of "Water at Interfaces" at the Rochester Section of the American Chemical Society at its recent meeting in the Rundel Library Auditorium in Rochester. Albert started a surface chemistry laboratory at Lehigh University during World War II to work on active magnesium catalysts for the synthetic rubber program. The scope of the work grew through the years to include studies of the heterogeneity of surfaces, the corrosion of metals, the nature of boundary lubrication, non-soap grease formation and structure, the absorption of surfactants, the surface properties of pigments, clays and minerals, and heats of wetting of solids in liquids by immersion calorimetry. This work continues to be supported by a number of government agencies and chemical companies. . . . **Joseph S. Quill** was speaker at the Unitarian Fellowship in Owensboro, Ky., on the subject of "Plain Talk and Hard Work." Although a native of Beverly, Mass., he lived in Schenectady, N.Y., for 20 years. He moved with his family to Owensboro a year and-a-half ago. A Unitarian for many years, he was active in the Schenectady church and upon moving to Owens-

boro became a member of the fellowship. At present he is chairman of that group. . . . Professor **Robert A. Fano**, head of M.I.T.'s Project MAC, at a recent press conference, predicted a network of "computer public utilities" as the probable result of the current research in time-sharing. The press conference was held to "demonstrate some of the early steps" achieved by Project MAC in developing a working time-sharing system. . . . **Geoffrey D. Roberts** of Boston and Osterville, has joined in the management of the Model Shop Associates, Inc. of Sudbury, Mass. He is chairman of the board and a consultant in machine design. He was formerly employed with Arthur D. Little, Inc. and Nuclear Metals.—**Walter J. Kreske**, Secretary, 53 State Street, Boston, Mass.; **Henry Averý**, Assistant Secretary, 169 Mohawk Drive, Pittsburgh, Pa.; **Everett R. Ackerson**, Assistant Secretary, 16 Vernon Street, Braintree, Mass.

'42

About the middle of May I ran into **Ed Vetter** at the Faculty Club. He was on his way for a quick trip to Rome and Naples. I am sure many of us envy him that kind of business responsibility. . . . **Pete Westervelt** stopped in to see me. For 13 years he has been at Brown University, where he is now a full professor of physics. At the moment, he is working in high-energy physics, cosmology and general relativity. He is married and has two children. Pete is one of those fortunate people whose appearance changes remarkably little as the years go by. He had a Russian exchange student in tow. It was most interesting to hear the visitor tell how research is conducted in the Soviet Union, both by business and by the universities. As far as I could see, there is a contractual system existing which closely parallels in many ways many of the procedures followed in the United States. . . . Early in May, I had occasion to talk with **Jerry Coe**. He has been appointed to a new position in the General Electric Company. He will leave Schenectady shortly for New York City where he will report to the vice-president of Marketing Services. Jerry's title will be manager-marketing and public relations research service. After having been general manager of the Silicone Products Department for more than five years, this change from operations to services will be quite a new responsibility for him. It will certainly be a much broader responsibility and represents a real advance.

I note that **Bill Denhard** will be talking at an Industrial Liaison Symposium here at M.I.T. on May 20. The subject of his talk is "Ball Bearings As Hydrodynamically Supported Bearings." Bill has been working in this field for some years and has made real contributions to the development of inertial instruments. . . . **John Briggs** has been appointed manager of market research and planning at Bethlehem Steel. He has advanced through both sales and research and was most recently manager of commercial re-

search. . . . **David Christison** has been appointed manager of employee relations at Socony Mobil Oil Company. He most recently was manager of the Mobil Oil Company, Ltd., refinery at Coryton, England. . . . **William Johnson** has been named to the newly created position of new products development manager for Associated Spring Corporation. He was formerly assistant director of research and development. . . . **Bob Seavey** has joined Cryonetics Corporation as manager of engineering. Prior to joining Cryonetics, Bob's experience included positions with Chrysler Corporation, Ford Motor Company and Paragon Gear Works, where he was chief engineer. For the past seven years, he has been connected with Metals and Controls, now a division of Texas Instruments, Inc., where he held a series of positions including project manager for their initial nuclear fuels program, chief process engineer for the Nuclear Products Division, manager of the Energy Conversion Program and director of engineering services. . . . I deeply regret having to report that **Conrad Lau** passed away in Dallas on April 18, 1964. . . . Finally, a bit of news about myself. I have recently accepted a position as director of resources at the Harvard Business School. In this new function I will be responsible for fund raising at the school. After having been at M.I.T. for so many years, the decision to leave was a difficult one to make. But I do hope that many of you will visit me, after September 1, in my new quarters.—**Jack Sheetz**, Secretary, Room 7-203, M.I.T., Cambridge 39.

'43

Ed Epremian has been named assistant director of research for the Carbon Products Division of Union Carbide Corporation, Parma, Ohio. Ed, who received his master's from Rensselaer and his doctorate from Carnegie, was with the O.N.R. in London from 1951 to 1953, where he served as deputy director in 1953, and was chief of the metals and materials branch, research division, Atomic Energy Commission, until 1957, when he joined Union Carbide as senior research metallurgist. . . . **Ward Haas** has been appointed director of the new Space Science Research Center at the University of Missouri. Established by the Missouri legislature with \$2¼-million appropriation last year, this new center is for the development and advancement of Missouri's rising importance in the space science field. Ward returned to M.I.T. in 1946 and received his doctorate in 1949, and was a teaching and research assistant. He served as attaché at the U.S. Embassy in London from 1951 to 1954, when he joined Chas. Pfizer & Company, pharmaceutical and chemical manufacturers of New York. He has held important administrative and executive positions there, and since 1959 has been director of operations of their national marketing division. In his new position at the University of Missouri, Dr. Haas will be responsible for organizing and co-

ordinating the program of research in space science, planning and directing the building program and acquisition of equipment, and co-ordinating and integrating a program of research among all the university's departments in projects relating to space science. He and Mrs. Hass are the parents of three children.

Paul Coulson represented M.I.T. at the inauguration ceremonies at Birmingham Southern College on May 14, in Alabama, complete with cap and gown.

... **Earl Bimson**, Executive Vice-president of the Valley National Bank of Arizona, Phoenix, has been elected a director of the Financial Executives Institute, and will serve for three years. He has been active in the Institute since 1956 and is president of its Phoenix chapter.

... **J. Vincent Fitzgerald**, who received his doctorate with our class, received national recognition in the ceramic field when he was made a fellow of the American Ceramic Society.

... **John Linvill** has been appointed head of the department of electrical engineering at Stanford.

... **Ed Lord** moved from Pennsylvania to Orono, Maine. ... I received a letter from **Frances Kraft Golden**, who received her master's in public health with our class, inquiring about the Reunion Handbook. I regret that very few biographies of graduate students appear in it, but very few were sent in. Frances was married in 1961 to Dr. Ross Golden, visiting professor in the Department of Radiology at U.C.L.A. Medical School.

Greg Azarian and I meet every few weeks in West Hartford, as his sister is a back yard neighbor of mine. He reports that his new business is keeping him busy, and is doing well. He couldn't make the 20th Reunion, he says, because of a two-month European trip at that time. I told him if I had that choice I would have stayed here for the reunion. Your secretary visited M.I.T. in April with his 11-year old son, and we had quite a time there. After about five hours of walking I came to the conclusion that "it ain't the same." The only laboratory they haven't touched is the freshman chemistry one, and there we saw the boys struggling as we once did. The big steam engines, testing materials machines, drafting rooms, the "Arm Pit"—all are gone. The food at Walker is the same. The new Student Center, under construction, will be quite the place. I strongly recommend such a visit to you all. Everyone there is most hospitable except the parking lot attendants, who turn you away at every entry. My Connecticut license plate with the M.I.T. initials got me nowhere. Have a happy summer, and write when you can.—**Richard M. Feingold**, Secretary, 10 North Main Street, West Hartford, Conn.; **John W. McDonough, Jr.**, Assistant Secretary, 524 North Lincoln Street, Hinsdale, Ill.

around, found the cupboard bare, and the deadline upon him, and he couldn't fabricate out of thin air. I hope that this problem will be reversed next year, and we will have all sorts of news pouring into the address below. ... I have tried on a couple of occasions to call **Tom Carmody**, X, but it seems this is his heavy traveling season. He usually manages to have a good deal of news about the men in the class as a result of his travels. ... During a trip to Detroit, I was able to talk briefly with **Henry Moore**, VIII. Until very recently, Hank has been with Chrysler and had been closely associated with their new turbine engine. He has left the big company, and is now with a small research-oriented company, Williams and Company, who specialize in gas turbines. Hank said that he had planned to come to the reunion, but that he was in the middle of moving from one house to another and just wasn't able to make it. I know we had more fun than you did Hank.

Before closing the notes for the summer, I want to report that many of you will be watching the sportscasts on NBC-TV stations. The man behind the sports programming for NBC-TV is **Carl Lindmann**, IX, who has been with NBC since 1948 and now holds the title of vice-president for sports. I am certain Carl will be happy to hear comments from satisfied viewers. ... Have a good summer, and if you are near the World's Fair, give the Heilman's a call, so that I can start with numerous notes for next year.

—**Paul Heilman**, Secretary, 30 Ellery Lane, Westport, Conn.

Company. ... **Roger P. Sonnabend**, President of Hotel Corporation of America, spoke on "The Challenge—Creative Marketing," at the annual luncheon meeting of the New England Hotel Sales Management Association last May. ... After 15 years with the Oak Ridge National Laboratory, **John A. Norris** has joined Jerrell-Ash, a Waltham, Mass., firm, as assistant director of research. ... The following address changes have been received. **John M. Dudley**, 1286 Danville Boulevard, Alamo, Calif.; **William F. Herberg, Jr.**, 2424 Dammand Drive, Midland, Mich.; **Dr. Beverly J. Beane**, Apartment 202, 13825 12th Avenue S.W., Seattle, Wash.; **Donald L. Bruenner**, 121 North Van Dien Avenue, Ridgewood, N.J.; **Alexander Kananovich**, 30 Madison Avenue, Watertown, Mass.; **Melvin M. Levine**, 16 Cove Lane, Port Jefferson, N.Y.; **Lawrence E. Nelson**, Picacho 287, Mexico 20 D.F., Mexico; **Ralph W. Rawson**, Firth Sterling, Inc., 3113 Forbes Avenue, Pittsburgh, Pa.; and **Alan H. Yates**, 1 Sherry Court, Centerport, N.Y.

This closes out the publishing year, and it has been a tough one as far as correspondence has been concerned. Only a handful of people have found the time to drop a line to your secretary. We thank them again for their efforts, but hasten to request that those who have not written recently please do so. If you do we will be back on this same page next November. Have a happy summer.—**John A. Maynard**, Secretary, 25 Pheasant Lane, North Oaks, St. Paul 10, Minn.

'46

Dr. Thomas F. Malone, Director of Research, was recently named second vice-president of the Travelers Insurance

'47

I received a welcomed letter from **Lee Hanower**, who has left Allied Chemical to join the Esso Chemical Company. He expects to be doing some global traveling in connection with market research in



Dean Kenneth R. Wadleigh, '43, **Mrs. Wadleigh**, their son and daughter christened a new shell for M.I.T.'s lightweight crew this spring.

'44

A short epitaph to the notes that were not written last month might say: No News—No Notes. Your secretary looked

the fertilizer and agricultural chemical fields. Lee lives in Closter, N.J., and has two children, 7 and 5. . . . **James A. Fay** participated in the International Symposium on 'Fundamental Phenomena in Hypersonic Flow' at Cornell University. . . . **Elroy E. Frye** has been appointed manager of sales, Gulf Coast, for the M. W. Kellogg Company, an international engineering and construction firm. . . . **Roger S. Holcomb** has been appointed refinery manager at American Oil Company facilities in Salt Lake City. . . . **Daniel S. Maisel** has been promoted to head of the Projects and Long-Range Planning Department of Enjay Chemical Company. Dan received his Ph.D. from Tech after doing his undergraduate work at Carnegie Tech in chemical engineering. . . . **Herbert Kay** has been appointed director of product planning for Climax Molybdenum Company. He has been with Climax since 1955. Prior to that he was employed at Consolidation Coal Company and Stanolind Oil & Gas Company. Herb now lives in New York City and has three children. . . . **Russell Sloan** has been appointed to the new post of vice-president, development and planning for the Morton Chemical Company, a division of Morton Salt Company. Russell now lives in Lake Forest, Ill., and has four daughters. He will direct the company's program aimed at widening interests here and abroad in organic and inorganic chemicals, formulated agricultural pesticides, polymers, resin coatings and photographic chemicals. . . . Colonel **Thaddeus N. Nosek**, West Hartford's public works director, received the Legion of Merit at Army retirement ceremonies at Ft. Belvoir, Va. Colonel Nosek is a West Point graduate with an advanced degree in civil engineering from M.I.T. . . . **Donald B. Hyde, Jr.**, President of Hyde's, Inc., is general chairman of the Waltham Rotary Industrial Trade Show. . . . **Arthur J. Zito**, Manager of space science marketing for General Electric's Space Technology Center in Philadelphia, spoke on "Just in Case You are Headed for a Heart Attack" at a meeting of the Industrial Management Club of Perth Amboy. Zito's book on public speaking for executives, "Unaccustomed as I Am," was a best seller.

The following change of addresses have been received: **Charles A. Morton, Jr.**, Springwood Path, Laurel Hollow, Syosset, N.Y.; **Gilbert S. Parker**, 401 East 74th Street, New York City; Captain **John F. Refo**, 'U.S.S. Denebola AF56,' FPO, New York; **Frank Schwoerer, Jr.**, 7213 Rollingwood Drive, Chevy Chase, Md.; **Allen S. Arnold**, c/o Mrs. B. A. Roberts, 134 Winthrop Road, Columbus, Ohio; **John J. Barrett**, 23 Gordon Road, Needham, Mass.; **Walter R. Derlacki**, 143 Lockwood Road, Riverside, Conn.; **James B. Duke**, 57 Timber Drive, Berkeley Heights, N.J.; **John W. Kellett**, Standard Oil Co. of N.J., 30 Rockefeller Plaza, New York City; **Gerard L. Landsman**, 4081 E. Campbell, Phoenix, Ariz.; **Sister Alfred Marie**, St. Mary's Hospital, Box 157, Clayton Road, St. Louis, Mo.; **James G. Moir, Jr.**, 5 Sage Hill Lane, Troy, N.Y.; **Donald M. Van Greenby**, 70 Van Greenby Road,

Lowell, Mass.; **Howard A. Zwemer**, 9507 Barrall Lane, Kensington, Md.; **Robert C. Boyer**, 68 Orchard Drive, Lancaster, Pa.; **Charles F. Brodersen**, 1703 South Eaton Road, Birmingham, Mich.; **Paul M. Cook**, Raychem Corporation, Oakside at Northside, Redwood City, Calif.; **George A. Flume**, Carrier International, Ltd., Carrier Parkway, Syracuse, N.Y.; **Arnold S. Judson**, 66 Redington Road, London N.W. 3, England; Captain **Robert E. Sorensen**, U.S. Naval Turbine Test Station, Trenton, N.J.; **Garland A. Wood**, S.E. Virginia Regional Planning Commission, 399 Boush Street, Norfolk 10, Va.; **Francis E. Swain**, 2765 South Mabry Way, Denver, Colo.; **Carl H. Rooth**, Collins Radio Company, Richardson, Texas; **Willis B. Reals**, 33 Bryanton Square, London W1., England; **Joseph V. Kelly, Jr.**, 102 New Bridge Road, Sudbury, Mass.; **Roger S. Holcomb**, American Oil Company, Salt Lake City Refinery, Salt Lake City, Utah; **Ernst O. Grafe**, 7315-15th Avenue, Takoma Park, Md.; **John D. Goldson**, 11655 Gorham Avenue, Los Angeles, Calif.; **Wallace S. Frank**, 2137 Davison, Richland, Wash.; **Stuart G. Farnum**, Apartment 38, 5546 Lindley Avenue, Encino, Calif.; **Edward J. Dowe**, 9 Wilkie Boulevard, Marmora, Beesleys Point, N.J.; Colonel **Lavonne E. Cox**, 12852 Bubbling Well Road, Santa Ana, Calif.; **Morgan H. Cooper**, Route 2, Box 395, Crystal Lake, Ill.; **Arthur E. Buller**, Union Carbide Exploration, Ltd., 805 Davenport Road, Toronto 4, Ontario; **William E. Boyle, Jr.**, Lumbermen's Mutual Casualty Company, 4750 N. Sheridan Road, Chicago 40, Ill.—**Martin M. Phillips**, Secretary, TYCO, Inc., Hickory Drive, Waltham, Mass.

'48

We received quite a few items from the clipping services this month. It's good to know that our classmates are keeping busy. . . . Dr. **Albert J. Kelley** has recently been appointed director of NASA's Electronic Research Task Group. Dr. Kelly has been with the space agency a number of years, first as Agena launch vehicle program manager, and then director of electronics and control in NASA's Office of Advanced Research and Technology. He and his wife have three children. . . . **Bill A. Schmidt** has been promoted to plant metallurgist at the Whitin Machine Works at Whitinsville, Mass. . . . The DuPont Company announces that **Marshall Baker** has been named manager of drycleaning products for the Electrochemicals Department. Marsh has been associated with the technical and marketing development of "Valclene," a fluorocarbon solvent compound. . . . **Philip Macht** is active in his home town of Baltimore, Md. Besides his duties as vice-president of the Welsh Construction Company, he is a member of the board of the Park School, a director of the Associated Jewish Committee, and this spring was appointed to the Baltimore School Board.

We have also received several announcements from institutions of higher learning. Professor **Robert Hulsizer**, University of Illinois Department of Physics, has been honored for his outstanding contributions to physics teaching with the Distinguished Service Citation of the American Association of Physics Teachers. . . . Dr. **Robert Gluckstern** has been appointed professor and head of the physics department at the University of Massachusetts. Prior to his new appointment, Dr. Gluckstern was a consultant to Brookhaven National Laboratory and to Los Alamos Scientific Laboratory. . . . The University of Michigan School of Public Health announced that **Edwin A. Eckert** was appointed professor of epidemiology. Ed has been with the faculties of the University of New York College of Medicine and with Duke University. . . . **Herb Kindler** is active with the Instrument Society of America. He is now the director of society operations at International Headquarters in Pittsburgh. . . . **Dick Berry** has been promoted to the post of technical director at the Rogers Corporation in Rogers, Conn. He is now responsible for the company's research and development activities.

From Canada comes news that **John Densmore** is now manager of purchasing and inventory control at the head office of the Dominion Bridge Company in Montreal. . . . This past year **William Ihde** has been the national vice-chairman of the Professional Technical Group on Audio for the I.E.E.E. Bill is the district manager of the General Radio Corporation's office in Chicago. . . . The Firestone Tire and Rubber Company has named **Walter E. Moore, Jr.** manager of truck and mileage tire engineering. . . . **William Thorbecke** has been named general manager of international operations for Mobil Chemical Company's chemical coatings division. He will have responsibility for affiliated companies in Canada, Mexico, Colombia, Brazil, Holland, and France. Bill and his wife, Sonya, have four children. . . . **John R. Kirkpatrick** has been elected a vice-president of Arthur D. Little, Inc. in Cambridge, Mass. . . . **James B. Palmer, Jr.** is research manager of the Crown Zellerbach Corporation in Carthage, N.Y. . . . Dr. **Edward L. Brady** has been appointed Chief of the Office of the National Standard Reference Data Program at the National Bureau of Standards. He will co-ordinate a large part of the present data compiling activities of a number of government agencies. . . . The **Manuel Matnick**s sent along an announcement of the arrival of 8½ pound Paul Nathan on March 1 of this year. Congratulations!—**Richard V. Baum**, Assistant Secretary, 1718 E. Rancho Drive, Phoenix, Ariz.; **John T. Reid**, Assistant Secretary, 80 Renshaw Avenue, East Orange, N.J.; **Robert R. Mott**, Secretary, Box 113, Hebron, Maine.

'51

To any who have yet to return the postal card sent out by our president, **Hank Spaulding**, please do so now. This

will enable us to have broader coverage in these pages. . . . Some of us remember that **Gerry Austen** took his S.B. in Course II on to Harvard Medical School. Now a specialist in cardiac surgery at Massachusetts General Hospital, he has been putting some of his Tech background to use in research there. He has been working on an oxygen injection system for use in developing a drug that will be useful in heart cases. . . . **Richard Bachtell** is working for Goodyear Aerospace in Ohio. . . . **Robert Bartels**, who has been city planner for Hartford, is to be an associate professor of planning in the School of Architecture at Syracuse University beginning this fall. In addition, he will work with a private architectural firm in Syracuse. . . . **David Bobroff**, with Raytheon since 1955, has most recently been working on optical lasers there. . . . **Jack Bordan** has been associated with Sir George Williams University in Montreal since 1952. Originally a lecturer in physics, he was appointed associate professor of engineering and chairman of the Department of Engineering at its inception in 1957. Now he holds the title of Dean of the Faculty of Engineering. . . . **James Bryan** is now chief of the Section on Technical Development at the National Institute of Mental Health in Bethesda, Md. Prior to that he was with Philco doing research on pattern recognition techniques. . . . **Malcolm Chamberlain** has been working with Dow Chemical Company since he received his Ph.D. in 1951. He was recently elected 1964 chairman of the American Chemical Society's Division of Cellulose, Wood, and Fiber Chemistry. . . . **Paul Coleman** is now professor of electrical engineering at the University of Illinois conducting research on submillimeter wave generation, detection, and propagation. He is also chairman of the board of Technological Counselors of FXR, Inc., Woodside, N.Y.

Dale Cooper is director of operations research for Bonner and Moore Associates in Houston. Previously he was with Union Oil Company of California, where he dealt with simulation and optimization models for both analog and digital computers. . . . **A. F. de Vitry d'Avaucourt** is a newly elected director of Ionics, Inc. of Cambridge. He serves as director, also, of Digital Equipment Corporation and Separation Processes Corporation. He is chairman of the board of Technical Studies, Inc., the English Channel Tunnel Company. . . . When an all Air Force team launched a Minuteman ICBM from Cape Kennedy early this year, Lieutenant Colonel **William Dienst** served as test controller. He has been assigned to the 6555th Aerospace Test Wing since August, 1962, serving as chief, Minuteman Division. . . . **John Dowds** opened his own office as petroleum consultant in geology and engineering in Oklahoma City last January. Previously he had been with Anabaco—Independent Oil & Gas Producers—for six years serving as partner and general manager. Before that he was with Kerr-McGee Oil Industries. . . . **Bert Eakin**, who completed his Ph.D. at I.I.T., has completed 10 years with the Institute of

Gas Technology on studies in phase equilibria, viscosity, and natural gas storage. . . . **Jerry Elkind** is head of the Engineering Psychology Department at Bolt, Beranek, and Newman and has been engaged in research on systems identification and on the adaptive characteristics of human operators in control systems. . . . **Robert Ferber** has joined Operations Research, Inc., Silver Spring, Md., as a senior engineer in the Management Systems Division. He went there from Flower and Fifth Avenue Hospitals, N.Y.C., where he served as business administrator, controller, and treasurer, responsible for purchasing, admitting, and IBM data processing. . . . **Carl Graf** has been named president of the Overseas Chemical Division of W. R. Grace & Company. He joined Dewey & Almy of W. R. Grace immediately after graduation from Harvard Business School. . . . The National Science Foundation has established an architectural staff, and **Harold Horowitz** has been named supervisory architect of the new group, which will provide the advice and assistance required to evaluate proposals to the N.S.F. for grants for scientific facilities. Previously he was technical director of the Building Research Institute, a scientific society for persons and organizations engaged in building research.

John Kalvinskas has been a research specialist in the nucleonics area and supervisor of basic studies in advanced projects of the Liquid Rocket Division of Rocketdyne. Earlier he was a research engineer at DuPont's Eastern Laboratory. He served as co-chairman of the Aerospace Session at a meeting of the American Institute of Chemical Engineers. . . . **George Kostritsky**, a former member of the Philadelphia Planning Commission, is now a member of the firm of Rogers, Lamb, and Talliaferro in Baltimore. He has also been professor of architecture and city planning at the University of Oregon, project director for the Greater Baltimore Committee, urban design consultant for the city of New Haven, and visiting critic in urban design and city planning at Harvard. . . . **William Laidlaw** is vice-president, Advanced Systems, North American Aviation. . . . **Robert Lucas**, executive vice-president of the Pittsburgh Steamship Division, U.S. Steel, has been serving on the board of governors of the Society of Sloan Fellows of M.I.T. . . . **Winston Markey**, Associate Professor in Course XVI, is associate editor of the A.I.A.A. Journal. . . . **Gerald Moore** is a computer sales engineer with Digital Equipment Corporation. Formerly he was assistant chief engineer at Concord Control, Inc. Living in Bedford, Mass., he has been active in town affairs, serving on the Finance Committee, on the Town Republican Committee, and community chairman for the last United Fund campaign. . . . **Skip Mott** has been made market sales manager for Design Chemicals of the Dow Chemical Company. He has a group that was consolidated from two marketing areas. He has been product sales manager for Organic Solvents, Amines, and Polyglycols in Industrial Chemicals Sales.

George Myers has been with Bell Labs since 1952. Along the line he earned the

Sc.D. in engineering from Columbia in 1959. Recently he has been concerned with guidance equations for space vehicles after having worked on analog and digital computers for automatic control. . . . **Cedric O'Donnell** is vice-president of research and development for North American Aviation's Autonet Division at Anaheim, Calif. He found time to write a book on inertial navigation, analysis and design, for McGraw-Hill. . . . **S. Stanford Olson** has been transferred by Dorr-Oliver, Inc. of Stamford, Conn., from manager of the process group of the government projects division to be district manager for central sanitary sales at the Chicago office. . . . **Gene Oster** is in charge of the Fuel Cell Lab of the Direct Energy Conversion Operation of G.E. in Lynn. . . . **William Phillips** is a research supervisor in the Central Research Department of DuPont. . . . **Robert Richards**, who has been superintendent of the new polyolefin film facilities at the DuPont plant in Clinton, Iowa, has been appointed assistant plant manager.

John Sewell spent the greater part of the last 10 years in Saudi Arabia while employed by the Arabian-American Oil Company. Now he is back at Tech doing graduate work in Course I. The Sewells have four children. . . . **Jim Shepherd** is now assistant comptroller for systems and procedures of National Distillers and Chemical Corporation. Among his new duties will be those of co-ordinating all data processing operations of the company. . . . **Pete Silverston** has been associate professor at Waterloo University in Ontario and has been working on the task of reducing evaporation in Canada's reservoirs. Formerly he had been at the University of British Columbia. . . . **Joe Sherrill** is serving as a trustee of Trinity University of Texas. After graduating from Harvard Law, Joe was admitted to the State Bar of Texas. His practice is in Wichita Falls. . . . **Mark Smith** has been appointed research vice-president for Geophysical Services, Inc., petroleum exploration subsidiary of the Science Services Division of Texas Instruments. . . . **George Spencer** is with the Radio Division of Bendix, where he has worked on designing electronic equipment for special environments. . . . **William Spicer** was employed at the RCA Labs in Princeton from 1955 until he joined Stanford University in 1962. . . . **Max Ulrich** is now vice-president of Consolidated Edison of New York, where he has direct responsibility for the company's extensive public relations activities. . . . **Roger Weatherbee** is program manager for development of the Apollo space suit assembly for the Hamilton Standard Division of United Aircraft. He has been with Hamilton Standard since 1951. . . . **Dexter Whittinghill** is assistant general superintendent for Campbell Soup in Chicago. He has been with Campbell since 1951 and has served as time study analyst, methods analyst, and methods engineer before moving to the superintendent's office.—**Richard W. Willard**, Secretary, 17 Sargent Road, Winchester, Mass. 01890; **Forest Monkman**, Assistant Secretary, Walworth Company, P.O. Box 758, Greensburg, Pa.

Well, this is the last column of the season and a somewhat full mail bag for a change; we certainly hope that this new volume of news keeps up next fall. . . .

Joe Alibrandi was featured on the front page of the Wall Street Journal in April as part of the Journal's series of articles spotlighting U.S. families from varied walks of life. The article discusses Joe's problems and concerns as a member of middle management and as chief of Raytheon's Sparrow, an air-to-air-missile for Air Force and Navy fighters. Joe oversees 7,000 employees and has an extremely varied range of activity in the program. The article is well worth pulling out of the library files if you didn't happen to see it (April 14). . . . **Herb Dow** was the featured speaker at the annual meeting and banquet of the Ionia Chamber of Commerce (Michigan) where he spoke on "Dow Chemical and the Future of Plastics." Herb is manager of fabricated products for the Dow Plastics Department with staff responsibilities for the company's efforts in plastic films, foams, construction materials, and consumer products. Herb is a director of Dow and related companies as well as a director of the Herbert H. and Grace A. Dow Foundation, a trustee of Hillsdale College, Saginaw Valley College, and other business and community activities.

We received a nice letter from **Gene Amazon** who is now part owner and director, Computer Programming of I.S.S., working on data processing problems in Geneva, Switzerland. Gene gives a rundown on his activities since 1952 including construction of U.S. Air Force bases in Casablanca, being drafted, designing towers for the Air Force in Oklahoma, marriage with Pat and two children, a boy and a girl, and working for IBM in New York. He and Pat would be pleased to see any old friends who are passing through Geneva and particularly asked the whereabouts of **Nat Levine** and **Vic Horlick**. . . . **Barnett Berliner** Associates have been doing an interesting neighborhood improvement study in North Brookline including development of a park with recreational facilities to meet the needs of all age groups, revamping traffic patterns, enhancing individual elements of the neighborhood. . . . Hawaii's Professional Engineering Society presented **Franklin Y. K. Sunn** with the Professional Engineer's Award as Engineer of the Year in March. This is only the second such award made in Hawaii and is presented for exemplary and outstanding service to the profession and the community. Franklin is president and manager of the consulting engineering firm of Sunn, Low, Rom, and Hara, Inc. who specialize in civil, sanitary, and structural engineering on such projects as the Airport Industrial Park, the Fallout Shelter Study for Oahu, many real estate subdivisions, etc. He is also secretary of the M.I.T. Club of Hawaii, a member of many professional societies, and immediate past president of the Hawaii Society of Professional Engineers.

Joel L. Ekstrom is with Sylvania Electronic Systems in Waltham, Mass., working in the general area of phased array antenna systems analysis. . . . **Daniel Shew** has been named manager of product development at Stauffer Chemical in Richmond, Calif., working in the plastics area. **Kelsey Walker, Jr.** has been made senior staff engineer in the office of the general manager of Manned Systems Division of Aerospace Corporation in Los Angeles, where he has specific responsibilities for general systems engineering and technical direction of Gemini Titan II launch vehicles and the USAF Titan III. . . . **Bill Moss** is with Ernst and Ernst in Atlanta. . . . **Jack B. C. Purcell** is with Bolt, Beranek and Newman, directing the firm's architectural acoustics projects in the firm's West Coast office. . . . **John H. Gerstenmaier** of Akron was elected president of the Motor Wheel Corporation (subsidiary of Goodyear Tire) moving up from manager of automotive interior trim production.

Dr. Leonard Herzog was selected as a recipient of the Free Enterprise Awards Association Annual Award, for his work with Nuclide Analysis Associates with Mass Spectrometers and other instruments. Nuclide Corporation was founded by Dr. Herzog and has received the President's "E" Flag for an outstanding contribution to the Export Expansion Program of the U.S.A. in 1963. The F.E.A.A. Awards are presented to 10 men who overcame obstacles and competition and rose to own or head industries and serve as examples of the success possible to all under the free enterprise system. . . . Authors of recent papers include: **Dr. Robert S. McDonald** of General Electric on 'Infrared Spectroscopy in the Study of Adsorption at Non-Metallic Surfaces'; **Dr. Robert E. Ogilvie** of M.I.T. on 'Analytical Aspects of Electron Microanalysis' at the American Chemical Society, N.Y. . . . **Harold B. Hart** has been promoted from captain to major in the U.S.A.F. at the 1405th. Air Base Wing in Tinker, A.F.B., Okla. Major Hart is an advanced weather officer. . . . This is being written before the annual cocktail party at the Faculty Club, which I anticipate will be a successful off-year reunion for all those in the area. Best regards for the summer, and please drop me a note about what you are doing come September.—**Dana M. Ferguson**, Secretary, 242 Great Road, Acton, Mass.

We received an interesting news release about **Richard P. Simmons, III**. As a fellow metallurgist I was delighted to learn that Dick has been elevated to superintendent of the South Plant of Republic Steel Corporation in Canton, Ohio. This plant produces the company's "exotic" metals and special vacuum melted alloy steels. Prior to this appointment, he was manager of Quality Control for the LaTrobe Steel Company and was manager of processing for Titanium Metals Corporation of America. Dick, his wife and their two children live at 307 Gaslight

Circle (sounds very romantic) in North Canton. . . . Also in the metals business is **John R. O'Donnell, II**, who has recently assumed the position of sales manager of the Steel Mill Division of the Philadelphia Steel & Wire Corporation. . . . Our class will be glad to learn the good news received from **Don Pickles, X**, who underwent successful surgery at the Georgetown University Hospital. Don has had difficulty with a rheumatic heart murmur since early life and this has been traced to an almost non-existent aortic valve. A plastic valve has been installed and Don is able to perform strenuous activities on his 25-acre ranch in Brigham City, Utah. In order to support his wife, Katherine, and three daughters, he is manager of the Space Booster Program at Thiokol. In this assignment he is primarily aiming to prove that solid fuels are less costly than liquid fuels. Let's hope so Don and perhaps our taxes can go down even further!

We received an interesting note from **Paul Shepherd, I**, announcing the birth of Kent Paul on April 14 and Paul's simultaneous promotion to vice-president of Cabot, Cabot and Forbes, the Boston based development company. Paul will be in charge of the San Francisco office of the company and responsible for the development of a \$50-million dollar industrial park in South San Francisco. Living at 309 Darrell Road in Hillsboro in sunny California, his eastern friends extend all best congratulations on both counts! . . . Another interesting note from metallurgical classmate **Barry Lichter**, reports that he is completing a post-doctoral position with the Radiation Laboratory at the University of California and that in September he will move his family to Seattle where he will begin an appointment as acting associate professor of metallurgical engineering at the University of Washington. Congratulations! . . . Our man on Wall Street is apparently **Dr. William B. Farrington, XII**, who is involved in the financial analysis of technical companies for the Empire Trust Company. Bill is a consultant in geo-physics for various companies and a director of four corporations. He and his three children reside at 461 Grove Street in Upper Montclair, N.J. . . . **Robert J. Gellert, XV-A**, is also in the investment business with United Continental Corporation and spends his windfalls on his wife and three children in Hartsdale, N.Y. I hope that as many of us as possible can get to Alumni Day to renew old acquaintances.—**Norman R. Gardner**, Secretary, 100 Memorial Drive, Cambridge, Mass.

Because of editorial deadlines and such, this is being written in May. Our Reunion Report must, therefore, be held until November. In the meantime, we pass along some news items which have accumulated and which you may not have picked up at the reunion. . . . A lengthy and welcome letter from **Chuck Masison** is full of goodies. Chuck has gone back to Syl-



Members of the Class of '53, Julian Greenebaum (left) and Jim Mast (right) looked on as M.I.T. Club of Detroit Director Chuck Ricker, '42, presented the first of the Club's newly established Student Aid Fund Awards to Donald Camph, '68.

vania in Waltham, Mass., after a stint at General Electric, in Syracuse. His letter gives the impression that he, Ruth and the five smaller Masisons are all happy and prosperous. Chuck reports that while he was in Syracuse, he ran into several members of the class at General Electric. **Alex Pausley** is one of the bright lights there, and is also active in the M.I.T., Club of Central New York. **Dave Howes** is in charge of systems analysis activities on missile and aircraft systems for G.E. He, his wife Peggy Lou, and their two sons are living on a farm outside Syracuse. Other members of the class whom Chuck reports on include Dan Allen, '55, who is teaching somewhere in New Hampshire; **Bob Reichard**, who is making a strong contribution to the success of the Computer Control Company in Framingham, Mass.; and **Burt Noyes** and **Vic Ellins**, both of whom are at Sylvania with Chuck. Burt is doing systems research, and Vic is a project manager for Data Systems. Chuck himself is in charge of the Minute-man Systems Department.

Sam Losh has sent one of his regular reports from Los Angeles. He has recently joined Electric Optical Systems in Pasadena. He also writes that **Ken Christie** and **John Melavas** are with Douglas Aircraft. **Ken Heist** toils for Space Technology Labs. **Reed Margulis** has taken up with IBM after a try at Packard Bell. Sam also reports that he almost made it through the skiing season without incident, but he stabbed his big toe one morning getting out of bed, and broke it. He now wears shoes to bed, he claims. . . . **Lois Brody**, another in our small group of regular contributors to these columns, writes that **Howard** has been promoted to associate professor of physics at the University of Pennsylvania, and so the Brody clan is settling down in Cherry Hill, N.J. They managed a trip to Europe in March to attend a physics conference, and are generally enjoying life.

A few other items have come in from sundry sources. **Margie** and **Larry Leonard** added Rachel Lynne to their set of

offspring on April 24. Larry is still teaching at Case Institute in Cleveland. . . . **John Graumann** has been appointed manager of the thermal design department of Whitlock Manufacturing Company in Hartford, Conn. . . . **Joe Pennimpede** is general chairman of the Danvers, Mass., Cancer Fund committee for 1964. Joe is a senior project engineer for Edgerton, Germeshausen and Grier in Boston. . . . **John Bradshaw** represented M.I.T. at the inauguration of the new president of Roanoke College in April. . . . And that about ends not only this column and this year, but also this particular columnist. It has actually been 10 years since I first took typewriter in hand and began this phase of my long and colorful journalistic career. And even though I still have most of my hair, it is, I believe, time to retire. Despite my frequent wailings about a lack of news to report, several of the columns that I missed during the past several years have been victims of my own ever-growing schedule of activities. It is only fair to the class, therefore, to turn the job over to someone else. I must admit, though, that I do feel some regret in doing this. I am, by nature, rather nosy, and I have thoroughly enjoyed gathering and dispensing gossip. And working with the other class officers, particularly our presidents, **Dean Jacoby** and **Bob Anslow**, has been extremely pleasant. So, let me close by saying that I am extremely grateful to all who have helped me in one way or another over the past decade, especially those of you who have provided the news to fill the column. I hope you continue to send in your private thoughts and public images to my successor.—**Edwin G. Eigel, Jr.**, Secretary, 4945 Sutherland Avenue, Saint Louis, Mo. 63109.

'55

An ample supply of news even for July—what a treat! From Tokyo **Kenji Etani** writes of his activities as representative

in Japan of Scientific Design Company, Inc. He has been involved in the design and engineering of a number of plants there as well as in the promotion in other parts of the world of processes developed in Japan. He is also a partner in Sama and Etani, Inc., which designs, imports, and distributes engineering instruments. The news from Japan came via **Glenn Jackson**, back now in the Boston area, covering most of New England selling Rohm and Haas resins to the coatings, vinyl, wire and cable, and plastics industries. . . . **Tom Burke**, also in the Boston area, is with NASA, an aerospace technologist in data systems. . . . In Redondo Beach, Calif., **Fred Scarf** has returned to industry as a member of the technical staff of Space Technology Laboratories after several years of teaching. . . . Major **Leonard Sugarman** has left Bolling A.F.B., Washington, D. C., for duty with the Air Force Missile Development Center at Holloman A.F.B., N. M., as deputy director of the guidance control division. According to "Aviation Week" **Russ Mey-erand** has been made chief research scientist of the United Aircraft Research Laboratories in East Hartford. . . . **Frank Larson**, Chief of the Materials Testing Laboratory at Watertown Arsenal, has numerous achievements to his credit in the fields of plastic deformation and fracture of metals, according to "Metals Progress." But a bachelor, he finds time to fish. . . . **Al Dana** recently addressed the Connecticut Medical Association near his hometown of Ansonia; he is epidemic intelligence service officer with the hepatitis surveillance unit of the Communicable Disease Center of the U. S. Public Health Service in Atlanta. Al and Dorothy (nee McCann of South Portland, Maine) have two daughters, Deidre Ann, 6, and Debra Jean, 3.

Speaking of offspring, the **Gilbert Davidsons** became parents of a son, Marc Sandor, in February in Boston. . . . In March **Bruce Ames** was married in the M.I.T. Chapel to Elizabeth Ellen Morone of Hopedale, Mass., a graduate of Becker Junior College in Worcester. . . . **Bob Bartlett** was an usher and **Harry Collias** among the guests at the wedding. After a trip to Hawaii, Bruce and Betty were trying to return to reality, getting back to their respective jobs as section manager at the Raytheon Communication and Data Processing Operation in Norwood and as secretary and setting up their apartment in Norwood. . . . Last for this year is the news that **Don Steig**, data processing manager at Data Processing Systems, Inc. in Rochester, N. Y., has been named to the M.I.T. Educational Council. Have a good summer, and don't forget to write.—Co-secretaries: **L. Dennis Shapiro**, Aerospace Research, Inc., 130 Lincoln Street, Boston, Mass. 02135; **Mrs. J. H. Venarde (Dell Lanier)**, 2401 Brae Road, Wilmington, Del. 19803.

'56

Marv Bahnman now works at Goodyear Aircraft in Akron but he was recently visiting in Texas. Marv and Judie have

recently added a girl to their family, bringing the total to three girls and one boy. . . . A recent letter from Dr. **Arthur Frank** brings us up to date on the Frank brothers. Arthur received his master's in biochemistry in 1958 and then went to medical school. He is currently in residency in internal medicine at Stanford but for the next year he will be working for the Public Health Service in metabolic disease. Brother **Stuart** has also finished medical school and will be working on cardiology in London for the next year. . . . Dr. **Stan Hart** recently lectured at Edinboro (Pa.) State College on geophysics in connection with the visiting scientists' program of the Carnegie Institute of Washington, D.C. Stan is currently working on research into continental heat flow in the Department of Terrestrial Magnetism. . . . **Joe Huber** is at Goodyear Aircraft specializing in radar work. . . . **Guy** and **Lee Spencer** and family expect to be visiting in New England in July, up from Fort Worth where Guy is busy working on the TFX at General Dynamics. . . . I recently received a wedding announcement for **Bob Turner** who married Mary Elizabeth Collins of Birmingham, Mich., on April 25. Bob and Mary are living in Washington, D.C. Thus, we end our eighth year as alumni, with my reporting almost as bad as your correspondence.—**Bruce B. Bredehoft**, Secretary, 16 Millbrook Road, Westwood, Mass. 02090

'57

With this column I complete my second year of reporting the class news. The three months' interval until the next issue will give me a chance to rest and, hopefully, all of you a chance to write. I will be "summering" in Boston and would enjoy having you pay a call; my apartment is only a few hundred steps from the Freedom Trail. . . . Now for the final edition of the news for 1963-1964. **Ron Kintisch** wrote as follows: "I would like to report that effective February 1, I will be working as a management consultant for the Philadelphia accounting firm of Adler, Faunce, & Leonard. I leave Eastman Kodak after three and-a-half years, most recently as a management system analyst. In addition, I am finishing up a semester of teaching data processing at Monroe Community College. My wife Lenore received a master's degree this past June and does tutoring in remedial reading." . . . A letter from **Steen Gray** read: "After getting my S.M. and S.B. in VI-A in 1959 I went to San Diego State College, where I had spent my freshman year, as a physics instructor. That year I met and married Averill Forneret, a Canadian citizen, but a California resident. In 1960 we moved to San Gabriel, and I enrolled in Caltech's graduate school. I will receive a Ph.D. in engineering science this June. We have one son. Next year I will be starting in the new Engineering Department at the University of California at Santa Barbara as an assistant professor. We are looking forward to no smog!"

. . . The final letter for the year is from **Ben Inserra**. He wrote: "It's been a while since I have dropped a line to the class secretary but **Bill Fleischer's** appeal (December, 1963, issue) to all to get me hooked roused my writer's instinct. Actually I am writing to tell you to call off the search for my mate. I have found her. I was engaged December 25 to Cecilia Magann. Her brother Ralph is a sophomore in Course I at Tech. I met Ceil at the dedication ceremonies for the New York Alumni Center at the United Engineering Center last Fall. I heard from **Dean Kihara** (Course II). He is married and taking post-graduate work at Ohio State University. He hopes to get his Ph.D. by June." . . . Well, that's all for now. Best wishes for a fine summer. I will be back in the fall.—**Frederick L. Morefield**, Secretary, 1-A Acorn Street, Boston 8, Mass.

'59

Unfortunately, due to printer's deadline, these notes are being written before our reunion. Hopefully, the next issue of Technology Review will carry a detailed report on the eventful weekend in Chatham. . . . **Burton Eno** completed his master's in mechanical engineering at R.P.I. and has recently been named an associate professor of mechanical engineering at South Dakota State. . . . **George Barnett** has recently moved to New York and is living in Brooklyn Heights. George really seems to be enjoying life as a New York bachelor. . . . As no additional mail has arrived during the past two months I can only assume that all is well with everyone in the class. Again, anyone that did not attend the reunion, please drop a line informing me of your current activities.—**Robert A. Muh**, Secretary, 165 W 66th Street (7R) New York 23, N.Y.

'60

I received a letter from **Steve Gill** in early May. Steve writes: "I am receiving my Ph.D. at Harvard University this June, and then I will be joining the staff of the Stanford Research Institute, Menlo Park, Calif., as a research physicist." Steve married Margaret Gaskins of Webster Grove, Mo., about two years ago. . . . Most of the other news comes by way of press clippings, and I can't really say its very interesting. If I should mention your name, and you haven't written, you will know where I got the information. Why not drop a note and let us in on what is happening? . . . **Brian O'Conner** is now working for the DuPont Company's Central Research Department. Brian recently got a Ph.D. in organic chemistry at the University of Illinois. . . . **Bob Burton** was recently awarded a doctorate by Harvard. Bob is a captain in the Air Force and is an instructor in electrical engineering at the Air Force Academy. . . . **Dick Dougall** is now assistant professor of mechanical engineering at the University of

Pittsburgh. He spent last summer as a consultant for the National Academy of Science in Washington, D.C. That's the news for this time. Please don't forget those letters and notes.—**John B. Stevenson**, Secretary, Partridgeville Road, Athol, Mass.

'61

The first return postcards are in from the Spring Letter, so I have some firsthand information to pass on to you. May the trickle become a deluge! Thanks to all who have written; those who have not, get those postcards on the way! . . . **James Templeton's** family reports that he is at Brasenose College, Oxford, where he began work on his doctorate in physics last September. He expects to be there another year or two. . . . Closer to home is **Sam Williamson**, ". . . still plugging away at the 'Toot,' going for my Sc.D. in physics and concentrating in solid state subjects while doing my thesis at the National Magnet Lab." Sam hopes to finish up in another year. . . . **Ted Hammack** is also at Tech, hopes to complete his Sc.D. in textile research by fall. A new Hammack daughter arrived last September; that makes two girls. Greetings to all from Ted. . . . **Avinash Singhal** is still here at M.I.T., in Course I, after obtaining his Civil Engineering degree in 1962. . . . **Ed Sonn** claimed a master's in electrical engineering at Columbia in June, 1963, then returned to the Boston area to work at the Instrumentation Lab on computer design. Ed married Maybeth Dandel last October; they honeymooned in Bermuda, are now living in Woburn. A welcome P.S. from Ed: "I'll help with the 5th year reunion." Wonderful! Like-minded classmates contact President **Jaffe** (2500 Detroit Bank and Trust Building, Detroit, Mich., 48226).

John Maslanka is teaching math at Wentworth Institute in Boston and going to Boston College part-time for his master's, which he expects in a year. John at time of writing looked forward to a summer of mountain climbing. . . . **Bill Swanson** wrote in April that he had another eight months in the Navy; he was at that time anticipating going to Northern Europe (Norway, France, England, Belgium) around June 1, but not for too long apparently. . . . **Mike Harris** working for Raytheon in Watertown, Mass., on microwave materials. Wife Alice and one-year-old son Jeffrey round out the Harris family. Mike hopes to hear from other Baker House dining staff alumni—send in your cards! . . . **Don Morrison** writes that he is "working on a Ph.D. in quantitative economics at Northwestern in Evanston, Ill.," and that he "misses Boston." . . . Also out Don's way is **Aare Onton**, who is starting his third year at Purdue University's Department of Physics. He passed his doctoral preliminary examinations and finished his course work earlier this year, and is now starting his research. . . . **David Rundle** is a construction engineer with DuPont at the Chamber's Works Plant in New Jersey; Dave married June 20, 1964. . . . **Bob Telfer**

just finished his third year of medical school at Washington University in St. Louis. He and Gail have a 1-1/2-year-old boy "and a girl (we hope) on the way." They like St. Louis, but are "anxious to get back to the West Coast." . . . Two blank postcards have arrived so far, apparently from people who aren't doing anything worth mentioning. . . . **Romney Biddulph** is working in Ann Arbor for Ford, as a financial analyst. He's married, has one child.

Anyone who ever met **Gus Solomons**, or saw him perform, can hardly have forgotten it; a feature article in the Boston Globe brings us up to date on this classmate's activities. (Gus is a 1961 Course IV graduate.) Frenetically busy, Gus bases on New York, but flies to Boston once a week for a packed day of teaching and work in this area. After reading the article carefully, twice, I still can't find one single word which describes all that Gus is doing. The list includes dancing, choreography, teaching, acting both for television and the legitimate stage, and ballet lessons. "Performing artist" covers some of his activities; best I can do. One thing is sure: as an architect, Gus makes a great dancer. . . . **Gordon Baty** has had several articles published in the biweekly journal "Machine Design," on new-product innovation and on various aspects of starting a new company. The little profile in the "About the Authors" column says that his undergraduate work was in industrial management at M.I.T. (which we knew) and that he was going on for his Ph.D. here. The article goes on to state: "Gordon Baty is interested in furthering his education and in skiing. Strange as it seems, he has been able to combine the two endeavors. He is in bed studying for his doctoral generals while recuperating from a recent ski trip. It is his hope that some day a smart mechanical engineer will figure out a way to adjust safety bindings."—**Joseph Harrington, 3rd**, Secretary, 22 Hidden Road, Andover, Mass. 01810.

'62

My pleas were not in vain; the letters are beginning to come in. **Victor Schneider, XXI**, who received his M.S. in electrical engineering at Stanford last year, is a teaching assistant in electrical engineering at Northwestern. He is working towards his Ph.D. in the computer Sciences Program there. His wife, Lea, a graduate of Boston University's School of Sociology, is a professional worker for the Chicago Girl Scout Council. . . . **Hal Waler, II**, is in graduate school at Georgetown University studying political science. **Bob Elliott, XXI**, who will be obtaining his M.B.A. from the Stanford Business School in June, will go into the service for six months and then go to work in accounting for Arthur Andersen and Company in San Francisco. . . . **Thomas Layher, II**, writes that he is a design engineer in the advanced chassis department at Ford Motor Company in Dearborn, Mich. His marriage plans are for June 6, to Mary Birdsall of Simmons

College. Tom has been attending the Graduate School of Business Administration at the University of Michigan during the evenings. He admonishes me to admonish you to write.

Heschel Raskas, VII, and his wife Adinah were blessed with a son, Jonathan Elazar, in April. Heschel is working in molecular biology at Harvard. . . . **Phil Rabinovitz, X**, was recently in the Boston area doing sales engineering for the Carborundum Corporation. . . . **Hal Shukovsky, III**, who was in the Physics Department at Harvard for a while, is now back in the Metallurgy Department at M.I.T. . . . **Mike Jablow, VI**, **John Rollwagen, VI** and **Ed Linde, I**, will all be receiving their M.B.A.'s from the Harvard Business School (Stanford of the East) in June. . . . **Frank Osha, X**, is studying patent law at the Harvard Law School. . . . **Alan Fuchs, XXI-B**, is studying philosophy at Harvard. . . . **Dave Knaff, V**, and his wife Joyce are at Yale, where he is in the chemistry department. . . . **Hans Andersen, V**, is at M.I.T. working under Professor Oppenheim. . . . **Arnold Falick, V**, is doing graduate work at the University of California at Berkeley. . . . **Dennis Hafemann, V**, is in La Jolla, Calif., but I am not sure what he is doing. All of the information in this paragraph was sent to me by **Jeff Steinfeld, V**, who is doing graduate work at Harvard, and it is deeply appreciated. . . . I was in Boston in April, and I ate lunch at the Faculty Club with **Mike Feld, VIII**, and **Mike Lopin, XV**. Lopin is getting his master's in industrial management and was considering jobs in Texas and California when I talked to him. I also saw **Murray Sachs, VI-B**, who is continuing work on his Ph.D. and **Joe Perkell, II**, who is at Harvard Med studying dentistry. Joe is considering taking a year off next year to travel around Europe.

Erich Benderl, II, was referred to in an article in "Mechanical Engineering" with regard to his paper "Sampled-Data Velocity Vector Control of a Spacecraft." . . . **John Banzhaf, VI**, had an article in the March, 1964, issue of "Datamation" requesting information on the copyrighting of computer programs. John is studying to be a patent attorney at Columbia Law School and is researching that question for the Columbia Law Review. . . . **Arno Steiger, VIII**, who received his Ph.D. in 1962, recently joined the staff of the Theoretical Physics Department of the University of California Lawrence Radiation Laboratory at Livermore, Calif. Second Lieutenant **George Dotson** completed an officer orientation course at the Army Armor Center in Fort Knox, Ky., on April 8. . . . **Neil Weatherbie, VII**, has been promoted to first lieutenant in the Air Force. He is in the 1918th Communications Squadron at Scott A.F.B., Ill. . . . **Phil Miller, V**, is doing graduate work at Harvard and some part-time teaching at Simmons. . . . I strained my back playing tennis and was at the Palo Alto Medical Clinic when the nurse spotted the brass rat. Turned out her husband is **John Larson, 3d, VI**, who is at Stanford studying for his M.S. in electrical engineering, which he expects to obtain this summer or in the fall. His wife Nancy is a

physical therapist (a good one, too). If all goes well, by the time this appears, I will be the assistant treasurer at Oceanic Properties, Inc. (subsidiary of Castle & Cooke) in Honolulu, Hawaii. If all doesn't go well, Uncle Sam will have hooked me and who knows where I will be. In either case, my mail will be forwarded from the following address, so keep the letters coming.—**Jerry Katell**, Secretary, Stanford Business School, Palo Alto, Calif.

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If anyone wants the address of a classmate, just drop me a line and I will send it to you in trade for some news. The Cocktail Party, held in April for anyone in the Boston area, was a great success, with people coming all the way from Pennsylvania. **Fran Dyro** writes that she misses the Institute. She is studying medicine at University of Maryland, but will be in Woods Hole on a summer fellowship and plans to get up to Boston. . . . **Dave Landowne** will return to Boston in the fall. He is presently at Stanford Med and will transfer to Harvard Med. . . . **Joseph Alexis, Jr.** was commissioned a second lieutenant in the Air Force and is now training to be a navigator. . . . **Allen** and **Jeanne Clark** announced the birth of their daughter, Sherry Lynne, on April 17. Allen is continuing his education in Course XX. . . . On a sadder note, **Peter Bogdan** was lost in a canoeing accident at Glens Falls, N.Y., on April 25. . . . Don't get discouraged if you send me news and you don't see it in print right away. There is a two-month lag between writing the news and the issue it appears in. For example, this piece was written in May. Send any news to—**Bob Johnson**, Secretary, F-41 McCulloch, Boston 63.

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With this issue of The Technology Review our class begins what I hope will be close to a century of Class News. (I don't know who of us will still be around in 2064, but I am sure whoever is will have the jobs of class president, vice-president, secretary and treasurer all to himself!) I am grateful to those of you who sent me the card telling of your future plans. I will put as many names as possible into this column now, with later information going in future issues. Send me information at my home address, 2227 Vollintine Avenue, Memphis, Tenn., until Labor Day. After that I will be at the Harvard Law School and that will be sufficient address until I get a specific residence.

In the future all names will be in alphabetical order, but at present the time is lacking. So here we go . . . **Chris Ritz** of East Northport, N.Y., will be working at Grumman Aircraft as a weights engineer. . . . **Paul Gielen** of Belgium will be at M.I.T. in the Course III Ph.D. program. Paul was married in June. . . . **John Huguenin** of Staten Island will be

working in the Air Force Systems Command. . . . **Dennis Hinrichs** of Woodville, Ohio, will also join the Air Force. . . . **John Enyedy** of Elyria, Ohio, will stay on in the Mechanical Engineering Department at Tech. . . . **Je Chul Kim** of Seoul, Korea, will be working at the M.I.T. reactor; he was married in June. . . . **John McDaniel** of Tulsa, Okla., will be working at the IBM Components Division. . . . **Dayton Datlowe** of Armonk, N.Y., will be at the University of Chicago studying physics. . . . **John McFarland** of Cambridge will be a graduate student in economics at Harvard. . . . **Tom Herbert** of Newport Beach, Calif., will be in biophysics at Johns Hopkins on a fellowship.

James Bauman of Largo, Fla., will be an ensign in the Navy. . . . **Tom McNabb** of Newton will be at M.I.T. on a National Science Foundation traineeship and is getting married in August. . . . **Guillen Preckler** of Barcelona, Spain, will continue his Course II studies in Spain. . . . **Shyamadas Banerji** of Calcutta will stay here as a research assistant and says he "might" be married. . . . **Albert Zobrist** of Seattle will be a teaching assistant in mathematics at the University of Wisconsin. . . . **Fred Luconi** of Hammond, Ind., will be here in Course VI with a Hughes Aircraft fellowship and was married in June. . . . **Bruce Chrisman** of Falls Church, Va., will be in physics at the University of Illinois. . . . **Robert Hobbs** of Chevy Chase, Md., will be at Caltech in physics. . . . **James Arcella** of Hammond, Ind., will be at Purdue with an A.C.E.-N.S.E. fellowship working for a doctorate in nuclear engineering. . . . **Alan Rogers** of Southern Rhodesia will be in Course VI graduate school. . . . **John Goddard** of Scituate, Mass., will be in chemistry at Northwestern. . . . **Dave Gutman** of Chicago will be at the University of Illinois with a teaching assistantship in physics. . . . **Phil Townsend** of Muncie, Ind., has a NSF traineeship and will be at Purdue in Course X. . . . **Tom Wason** of Raleigh, N.C., will be at Texas Instruments. . . . **Wayne Stern** of Hewlett, N.Y., will be working at Adage, Inc., as a systems engineer. . . . **Tom Schellin** of Greenwich, Conn., will be at Houston with the Shell Development Company. . . . **Ed White** of Cornelia, Ga., will be at the University of New Hampshire in chemistry. . . . **Ashok Kalelkar** of New Delhi will be here in Course II. . . . **John Graham** of Orlando, Fla., will be studying medicine at the University of Minnesota. . . . **Francis Lowell, Jr.**, of Concord, will be at Tech in Course VI. . . . **Bruce Delagi** of New Burch, N.Y., will be at Purdue in Course VI. . . . **Bob Thurber** of Beaverton, Ore., will be at the University of Pennsylvania in electrical engineering with a Ford Foundation Fellowship. . . . **Gary Walpert** of Baltimore will stay here with a NSF fellowship in Course VI. . . . **Steve Roberts** of Scottsdale, Ariz., will be working at Motorola. . . . **George Harlem** of Lancaster, Pa., will be at M.I.T. in Course VI. . . . **Eugene Cornelius, Jr.**, of Macon, Ga., will be at Harvard in the Department of Statistics. . . . **Edwin Duffin, Jr.**, of Philadelphia will be

at the University of Pennsylvania in biomedical electrical engineering. . . . **Jon Gross**, also of Philadelphia, will be at Dartmouth in math. . . . **James Bahr** of Little Silver, N.J., will be at the University of Pennsylvania in chemistry. . . . **Abbas El-Sayed** of Cairo will be returning home to Egypt to work in the Ministry of Scientific Research. . . . **Max Deibert** of St. Johns, Mich., will be at Tech in Course X. . . . **John Shaner** of Newton Highlands will be a teaching assistant at the University of California at Berkeley. . . . **Robert Muhr** of Valley Stream, N.Y., will be an engineer at McDonnell Aircraft Company. . . . **Michael Coleman** of Long Beach, N.J., will be in math at Carnegie Tech. . . . **Gary Slater** of Highland Heights, Ky., will be at M.I.T. in Course XVI research. . . . **Bill Goldman** of Waltham will be at the Boston University Medical School. . . . **David Judelson** of New Haven will be working in London for an architectural firm. . . . **Steve Iverson** of Oak Park, Ill., had no comments on where he will be. . . . **Pete Chesbrough** of Houston will be at Georgia Tech with an NSF traineeship studying industrial engineering. . . . **Barbara Cohen** of Glen Cove, N.Y., will be at the Albert Einstein Medical School. . . . **Henry Modetz** of Northbrook, Ill., will be at M.I.T. in Course III. . . . **Don Kaiser** of Tacoma, Wash., will be Columbia with a Woodrow Wilson Fellowship. . . . **Bernard Morris** of Great Neck, N.Y., will be at Brown in physics. . . . **Norman Savin** of Port Chester, N.Y., will be at the University of Texas with a university fellowship in physics. . . . **John Foy** of Rahway, N.J., will be an actuarial trainee at the New York Life Insurance Company. . . . **Eugene Merrill** of Arlington, Mass., will work for a year before returning here; Gene was married in June. . . . **Arthur Greenburg** of Memphis will be at the University of California in Berkeley studying physics. . . . **Shanti Tewarson** of India will head home to be the head of the Physics Department at the Ewing Christian College. He had a son born to him in May. . . . **John Meriwether** of Louisville will be a teaching assistant at Tech. . . . **Julian Adams** of Lynchburg, Va., will be at Stanford in electrical engineering. . . . **James Flink** of Providence will be here in Course XV. . . . **Dean Smith** of Sunnyvale, Calif., will be a research assistant at Stanford. . . . **Leopoldo Guinand** of Caracas has no written plans. . . . **Carey Mann, Jr.** will be here at M.I.T. with an assistantship in Course XVIII. . . . **Phil Dangel** of Boston will be at Stanford learning how to play the guitar and mandolin (also materials science). . . . **Tom Drummond** of Winnipeg will be a Canadian Navy lieutenant. . . . **Jay Alvarez** of Monterey Park, Calif., is a lieutenant in the Navy working for an advanced degree in mechanical engineering. . . . **Jay Jaffe** of Glencoe, Ill., will be working in the actuarial department of the Connecticut General Life Insurance Company. . . . **Verne Jacobs** of Los Angeles, will be at Berkeley with a fellowship in Course VIII. . . . **David Laughlin, Jr.**, of Yelm, Wash., will be a second lieutenant in the U.S. Marines. . . . **Ambrose Clay, Jr.**,

of Marion, Ohio, will be at Columbia in Course VI. . . . **Robert Warakomsky** of Watertown, Conn., will be at the Coast Guard Electronics Station. . . . **Doug Fleckner** of Columbus, Ohio, will be at Ohio State in math. . . . **Jane Renker** of Newton Centre will be at Stanford in math. . . . **Marvin A. Geller** of Brockton will be at Tech in meteorology. . . . **Ralph Rosenbaum** of Albuquerque will be at the University of Illinois in electrical engineering. . . . **Pete Staecker** of Collaroy, Australia, will be a teaching fellow at Brooklyn Polytech. . . . **Ben Greene** of Wellesley has no plans at the moment. . . . **Ron Randall** of N.Y.C. will be at the Harvard Business school. . . . **Michael Burton** of Altadena, Calif., will be at Stanford in anthropology with an NSF fellowship. . . . **Kim Sloat** of Los Angeles will be field secretary for the Delta Upsilon Fraternity. . . . **Howard Kirkendall** of New Rochelle, N.Y., will be at M.I.T. in electrical engineering. . . . **Terrence Lenahan** of Pitman, N.Y., will be at Tech in Course VI too. . . . **Mike Todd** of Coral Gables, Fla., will be at the Imperial College in London. . . . **Rick Fisher** of Montreal will be working as an aviation consultant and special student at Columbia. . . . **Ev Devitt** of Albany will be at Tech in Course VI. . . . **Harry Kurtzig** of Flemington, N.J., will be at Stanford with a NSF fellowship in Course VI. . . . **Malcolm Easton** of Larchmont, N.Y., will be at Harvard in the Physics Department. . . . **Steve Miller** of Toledo, Ohio, will be here in electrical engineering. . . . **Pete Cooperberg** of Montreal will be at McGill University Medical School. . . . **Jim Lerner** of Shreveport, La., will be at Stanford in Course XVI. . . . **Ron Cordover** of Great Neck, N.Y., will continue here in Course VI. . . . **Bill Young** of Rochester will be at Berkeley with a NSF fellowship. . . . **Bill Euerle** of Milton, Mass., will be working for the Bethlehem Steel Company. . . . **E. B. Bossart, Jr.**, of Cleveland will be a student at the Navy Nuclear Power School. . . . **Bill Pinkerton** of Chicago will be working for Proctor and Gamble in Quincy. . . . **Paul Fehder** of Evansville, Ind., will be at Caltech on a teaching assistantship. . . . **Mike Rubin** of Columbia, S.C., will remain at M.I.T. in Course XVI. . . . **Don Faber** of Buffalo will be at the University of Buffalo in neuro-physiology. . . . **Bob Blumberg** of Scarsdale, N.Y., will be at the Institute for a master's in Course X. . . . **John Liu** of Singapore will be at Princeton as a research assistant in physics. . . . **Ray Leanza** will be training as a jet pilot in the Air Force. . . . **John Eulenberg** of Evanston, will be in linguistics at Harvard.

Well, friends, the powers that be at The Technology Review office are making me stop here, even though I am not halfway through the stack of cards. We have amazed them already with our interest and response, so let's keep it up. All other names received not appearing here will be in the next issue in November, so don't despair! Have a great summer and let me hear from you.—**Ronald L. Gilman**, Secretary, 2227 Vollintine Avenue, Memphis, Tenn.

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